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DEVOTED TO

SCHOOL AND HOME

EDUCATION

E. E. HIGBEE, EDITOR.

CONTENTS.

The History of a Piece of Coal: Fairy-Land of Science, No. VIII, . . 183
Wm. Penn and West Jersey: Chapter in Our History, *W. H. Dixon.* 189
William Penn on the Hustings: For Algernon Sidney, *W. H. Dixon.* 193
Strait-Jackets: Good Methods May Be Abused, ... *W. A. Beer.* 198
Wishing and Willing: Contrast to be Regarded, ... 199
Wasted Forces: Scientific Achievments and Possibilities, ... 200
Heat—A Lesson in Physics: For the School Room, *George L. Smith.* 201
Mechanism of Man: Its Wonderful Adjustment, . . . *O. W. Holmes.* 202
How to Teach Children: Books Made Attractive, not Repulsive, . . 203
Two Ways of Teaching at Home: Helping Children with Lessons. . 204
Local Geography: Some Methods of Teaching, . . *Selden Sturges.* 205
Reflex Influence of Teaching: . . . . . *James B. Angell.* 206
Fitness of Directors: Best Men Not Always Chosen, . *Thos. Raffery.* 209
What Some of Your Pupils Probably Cannot Do, ... 210
A Reminiscence: Teachers' Certificates, ... *H. C. Hickok.* 210
Editorial Department.—Editorial Notes—Death of Superintendent La Ross—Transit of Venus—Plan for Country School House—Modern Methods of Education: No. 1.—Outcome of the System; Reverence for Invisible Law, An Efficient Aid to the Family—What to Teach Boys. . 211
Official Department: County Institutes—Items from Reports. . . . 217
Music Page: "Beulah Land" and "All Hail the Power of Jesus' Name." 220

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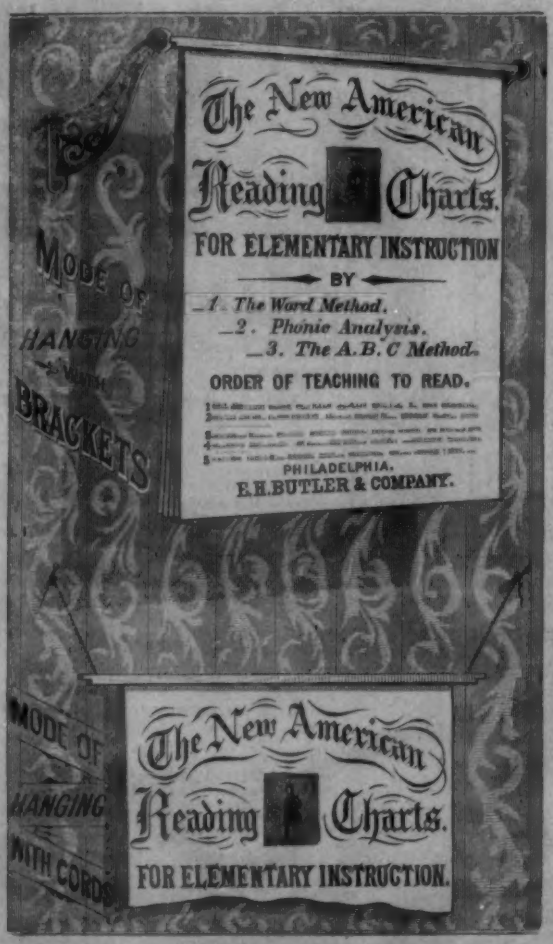

THE
SCHOOL JOURNAL
ORGAN OF THE DEPARTMENT OF COMMON SCHOOLS AND OF THE STATE TEACHERS' ASSOCIATION.

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THE HISTORY OF A PIECE OF COAL.

FAIRY-LAND OF SCIENCE: NO. IX.

I HAVE here a piece of coal, which, though it has been cut with some care so as to have a smooth face is really in no other way different from any ordinary lump which you can pick for yourself out of the coal-scuttle. Our work to-day is to relate the history of this black lump; to learn what it is, what it has been, and what it will be.

It looks uninteresting enough at first sight, and yet if we examine it closely we shall find some questions to ask even about its appearance. Look at the smooth face of this specimen, and see if you can explain those fine lines which run across so close together as to look like the edges of the leaves of a book. Try to break a piece of coal, and you will find that it will split much more easily along those lines than across the other way of the lump; and if you wish to light a fire quickly, you should always put this lined face downwards so that the heat can force its way up through these cracks and gradually split up the block. Then again if you break the coal carefully along one of these lines you will find a fine film of charcoal lying in the crack, and you will begin to suspect that this black coal must have been split up in very thin layers, with a kind of black dust between them.

The next thing you will call to mind is that this coal burns and gives flame and heat, and that this means that in some way sunbeams are imprisoned in it; lastly, this will lead you to think of plants, and how they work up the strength of the sunbeams into their leaves, and hide black carbon in even the purest and whitest substance they contain.

Is coal made of burnt plants, then? Not burnt ones, for if so it would not burn again; but you may have read how the makers of charcoal take wood and bake it without letting it burn, and then it turns black and will afterwards make a very good fire; and so you will see that it is probable that our piece of coal is made of plants which have been baked and altered, but which have still much sunbeam strength bottled up in them, which can be set free as they burn.

If you will take an imaginary journey with me to a coal-pit which I visited many years ago, you will see that we have very good evidence that coal is made of plants, for in all coal-mines we find remains of them at every step we take. Let us imagine that we have put on old clothes which will not spoil, and have stepped into the iron basket called by the miners a *cage*, and are being let down the shaft to the gallery where the miners are at work. When we land on the floor of the gallery we shall find ourselves in a kind of tunnel with railway lines laid along it, and trucks laden with coal coming toward the cage to be drawn up, while empty ones are running back to be loaded where the miners are at work. Taking lamps in our hands and keeping out of the way of the trucks, we will first throw the light on the roof, which is made of shale or hardened clay. We shall not have gone many yards

before we see impressions of plants in the shale, like those in this specimen which was taken out of a coal-mine at Neath in Glamorganshire, a few days ago, and sent up for this lecture. You will recognize at once the marks of *ferns*, for they look like those you gather in the hedges of an ordinary country lane, and that long striped branch does not look unlike a reed, and indeed it is something of this kind, as we shall see by-and-by. You will find plenty of these impressions of plants as you go along the gallery and look up at the roof, and with them there will be others with spotted stems, or with stems having a curious diamond pattern upon them, and many ferns of various kinds.

Next look down at your feet and examine the floor. You will not have to search long before you will almost certainly find a piece of stone called the Stigmaria. This fossil, which is the cast of a piece of a plant, puzzled those who found it for a very long time. At last, however, Mr. Binney found the specimen growing to the bottom of the trunk of one of the fossil trees with spotted stems, called *Sigillaria;* and so proved that this curious pitted stone is a piece of fossil root, or rather underground stem, like that which we found in the primrose, and that the little pits or dents in it are scars where the rootlets once were given off.

Whole masses of these root-stems, with ribbon-like roots lying scattered near them, are found buried in the layer of clay called the *underclay*, which makes the floor of the coal, and they prove to us that this underclay must have been once the ground in which the roots of the coal-plants grew. You will feel still more sure of this when you find that there is not only one straight gallery of coal, but that galleries branch out right and left, and that everywhere you find coal lying like a sandwich between the floor and the roof, showing that quite a large piece of country must be covered by these remains of plants all rooted in the *underclay*.

But how about the coal itself? It seems likely, when we find roots below and leaves and stems above, that the middle is made of plants; but can we prove it? We shall see presently that it has been so crushed and altered by being buried deep in the ground that the traces of leaves have almost been destroyed, though people who are used to examining with the microscope, can see the crushed remains of plants in thin slices of coal. But fortunately for us, perfect pieces of plants have been preserved even in the coal-bed itself. Do you remember our learning in Lecture IV. that water with lime in it petrifies things, that is, leaves carbonate of lime to fill up grain by grain the fibres of an animal or plant as the living matter decays, and so keeps an exact representation of the object?

Now, it so happens that in a coal-bed at South Ouram, near Halifax, as well as in some other places, carbonate of lime trickled in before the plants were turned into coal, and made some round nodules in the plant-bed, which look like cannon-balls. Afterwards, when all the rest of the bed was turned into coal, these round balls remained crystalized, and by cutting thin, transparent slices across the nodule, we can distinctly see the leaves and stems and curious little round bodies which make up the coal. Several such sections may be seen at the British Museum; and when we compare these fragments of plants with those which we find above and below the coal-bed, we find that they agree, thus proving that coal is made of plants, and of those plants whose roots grew in the clay floor, while their heads reached up far above where the roof now is.

The next question is, what kind of plants were these? Have we anything like them living in the world now? You might perhaps think that it would be impossible to decide this question from mere petrified pieces of plants. But many men have spent their whole lives in deciphering all the fragments that could be found; and though the section found may look to you quite incomprehensible, yet a botanist can read it as we read a book. For example, where stems are cut across, he can learn exactly how they were built up inside, and compare them with the stems of living plants, while the fruits and the little round spores lying near them tell him their history as well as if he had gathered them from the tree. In this way we have learned to know very fairly what the plants of the coal were like, and you will be surprised when I tell you that the huge trees of the coal-forest, of which we sometimes find trunks in the coal-mines from ten to fifty feet long, are only represented on the earth now by small insignificant plants, scarcely ever more than two feet, and often not many inches high.

Have you ever seen the little club-moss, or Lycopodium, which grows all over England, but chiefly in the north, on heaths and mountains? At the end of each of its branches it bears a cone made of scaly leaves; and fixed to the inside of each of these leaves is a case called a sporangium,

full of little spores or moss-seeds, as we may call them, though they are not exactly like true seeds. In one of these club-mosses called *Selaginella*, the cases near the bottom of the cone contain large spores, while those near the top contain a powdery dust. These spores are full of resin, and they are collected on the Continent for making artificial lightning in the theatres, because they flare when lighted.

Now, this little Selaginella is of all living plants the one most like some of the gigantic trees of the coal-forests. If you look at this picture of a coal-forest, you will find it difficult perhaps to believe that those great trees, with diamond markings all up the trunk, hanging over from the right to the left of the picture, and covering all the top with their boughs, could be in any way relations of the little Selaginella; yet we find branches of them in the beds above the coal, bearing cones larger, but just like Selaginella cones; and what is most curious, the spores in these cones are of exactly the same kind and not any larger than those of the club-moss.

These trees are called by botanists Lepidodendrons, or the *scaly trees*. There are numbers of them in all coal-mines, and one trunk has been found 49 feet long. Their branches were divided in a curious forked manner and bore cones at the ends. The spores which fell from these cones are found flattened in the coal, and they may be seen scattered about in the coal-ball.

Another famous tree which grew in the coal-forests was the one whose roots we found in the floor or *underclay* of the coal. It has been called Sigillaria, because it has marks like seals (*sigillum*, a seal) all up the trunk, due to the scars left by the leaves when they fell from the tree. You will see the Sigillarias on the left-hand side of the coal-forest picture, having those curious tufts of leaves springing out of them at the top. Their stems make up a great deal of the coal, and the bark of their trunks is often found in the clays above, squeezed flat in lengths of 30, 60, or 70 feet. Sometimes, instead of being flat, the bark is still in the shape of a trunk, and the interior is filled with sand; and then the trunk is very heavy, and if the miners do not prop the roof up well, it falls down and kills those beneath it. Stigmaria is the root of the Sigillaria, and is found in the clays below the coal. Botanists are not yet quite certain about the seed-cases of this tree, but it is believed that they grew inside the base of the leaves, as they do in the quillwort, a small plant which grows in the bottom of our mountain lakes.

But what is that curious reed-like stem we found in the piece of shale? That stem is very important, for it belongs to a plant called a *Calamite*, which, as we shall see presently, helped to sift the earth away from the coal and keep it pure. This plant was a near relation of the "horsetail," or Equisetum, which grows in our marshes; only, just as in the case of the other trees, it was enormously larger, being often 20 feet high, whereas the little Equisetum is seldom more than a foot, and never more than four feet high in England, though in tropical South America they are much higher. Still, if you have ever gathered "horsetails," you will see at once that those trees in the foreground of the picture, with leaves arranged in stars round the branches, are only larger copies of the little marsh-plants; and the seed-vessels of the two plants are almost exactly the same.

These great trees, the Lepidodendrons, the Sigillarias, the Calamites, together with large tree-ferns and smaller ferns, are the chief plants that we know of in the coal-forests. It seems very strange at first that they should have been so large when their descendants are now so small; but if you look at our chief plants and trees now, you will find that nearly all of them bear flowers; and this is a great advantage to them, because it tempts the insects to bring them the pollen-dust, as we saw in the last lecture.

Now the Lepidodendrons and their companions had no true flowers, but only these seed-cases which we have mentioned; but as there were no flowering plants in their time, and they had the ground all to themselves, they grew fine and large. By-and-by, however, when the flowering plants came in, these began to crowd out the old giants of the coal-forests, so that they dwindled and dwindled from century to century till their great-great-grandchildren, thousands of generations after, only lift up their tiny heads in marshes and on heaths, and tell us that they were big once upon a time.

And indeed they must have been magnificent in those olden days, when they grew thick and tall in the lonely marshes where plants and trees were the chief inhabitants. We find no traces in the clay-beds of the coal to lead us to suppose that men lived in those days, nor lions, nor tigers, nor even birds to fly among the trees; but these grand forests were almost silent, except when a huge animal something like a gigan-

tic newt or frog went croaking through the marsh, or a kind of grasshopper chirruped on the land. But these forms of life were few and far between, compared to the huge trees and tangled masses of ferns and reeds which covered the whole ground, or were reflected in the bosom of the large pools and lakes round about which they grew.

And now, if you have some idea of the plants and trees of the coal, it is time to ask how these plants became buried in the earth and made pure coal, instead of decaying away and leaving behind only a mixture of earth and leaves?

To answer this question, I must ask you to take another journey with me across the Atlantic to the shores of America, and to land at Norfolk in Virginia, because there we can see a state of things something like the marshes of the coal forests. All round about Norfolk the land is low, flat, and marshy, and to the south of the town, stretching far away into North Carolina, is a large, desolate swamp, no less than forty miles long and twenty-five broad. The whole place is one enormous quagmire, overgrown with water-plants and trees. The soil is as black as ink from the old, dead leaves, grasses, roots, and stems which lie in it; and so soft, that everything would sink into it, if it were not for the matted roots of the mosses, ferns, and other plants which bind it together. You may dig down for ten or fifteen feet, and find nothing but peat made of the remains of plants which have lived and died there in succession for ages and ages, while the black trunks of the fallen trees lie here and there, gradually being covered up by the dead plants.

The whole place is so still, gloomy, and desolate, that it goes by the name of the "Great Dismal Swamp," and you see we have here what might well be the beginning of a bed of coal; for we know that peat when dried becomes firm and makes an excellent fire, and that if it were pressed till it was hard and solid it would not be unlike coal. If, then, we can explain how this peaty bed has been kept pure from earth, we shall be able to understand how a coal-bed may have been formed, even though the plants and trees which grow in this swamp are different from those which grew in the coal-forests.

The explanation is not difficult; streams flow constantly, or rather ooze into the Great Dismal Swamp from the land that lies to the west, but instead of bringing mud in with them as rivers bring to the sea, they bring only clear, pure water, because, as they filter for miles through the dense jungle of reeds, ferns, and shrubs which grow round the marsh, all the earth is sifted out and left behind. In this way the spongy mass of dead plants remains free from earthy grains, while the water and the shade of the thick forest of trees prevent the leaves, stems, etc., from being decomposed by the air and sun. And so year after year as the plants die they leave their remains for other plants to take root in, and the peaty mass grows thicker and thicker, while tall cedar trees and evergreens live and die in these vast, swampy forests, and being in loose ground are easily blown down by the wind, and leave their trunks to be covered up by the growing moss and weeds.

Now we know that there were plenty of ferns and of large Calamites growing thickly together in the coal-forest, for we find their remains everywhere in the clay; so we can easily picture to ourselves how the dense jungle formed by these plants would fringe the coal-swamp, as the present plants do the Great Dismal Swamp, and would keep out all earthy matter, so that year after year the plants would die and form a thick bed of peat, afterwards to become coal.

The next thing we have to account for is the bed of shale or hardened clay covering over the coal. Now we know that from time to time land has gone slowly up and down on our globe, so as in some places to carry the dry ground under the sea, and in others to raise the sea-bed above the water. Let us suppose, then, that the Great Dismal Swamp was gradually to sink down so that the sea washed over it and killed the reeds and shrubs. Then the streams from the west would not be sifted any longer, but would bring down mud, and leave it, as in the delta of the Nile or Mississippi, to make a layer over the dead plants. You will easily understand that this mud would have many pieces of dead trees and plants in it, which were stifled and died as it covered them over; and thus the remains would be preserved like those which we find now in the roof of the coal-galleries.

But still there are the thick sandstones in the coal-mine to be explained. How did they come there? To explain them, we must suppose that the ground went on sinking till the sea covered the whole place where once the swamp had been, and then sea-sand would be thrown down over the clay and gradually pressed down by the weight of new sand above, till it formed solid sandstone, and our coal-bed became buried deeper and deeper in the earth.

At last, after long ages, when the thick mass of sandstone above the bed had been laid down, the sinking must have stopped and the land have risen a little, so that the sea was driven back; and then the rivers would bring down earth again and make another clay-bed. Then a new forest would spring up, the ferns, Calamites, Lepidodendrons, and Sigillarias would gradually form another jungle; and many hundreds of feet above the buried coal-bed, a second bed of peat and vegetable matter would begin to accumulate to form another coal-bed.

Such is the history of how the coal which we now dig out of the depths of the earth once grew as beautiful plants on the surface. We cannot tell exactly all the ground over which these forests grew in England, because some of the coal they made has been carried away since by rivers and cut down by the waves of the sea, but we *can* say that wherever there is coal now, there they must have been.

Try and picture to yourself that on the east coast of Northumberland and Durham, where all is now black with coal-dust, and grimy with the smoke of furnaces, and where the noise of hammers and steam-engines, and of carts and trucks hurrying to and fro, makes the country re-echo with the sound of labor—there ages ago, in the silent swamp shaded with monster trees, one thin layer of plants after another was formed, year after year, to become the coal we now value so much. In Lancashire, busy Lancashire, the same thing was happening, and even in the middle of Yorkshire and Derbyshire the sea must have come up and washed a silent shore where a vast forest spread out over at least 700 or 800 square miles. In Staffordshire, too, which is now almost the middle of England, another small coal-field tells the same story, while in south Wales the deep coal-mines and number of coal-seams remind us how for centuries and centuries forests must have flourished and have disappeared over and over again under the sand of the sea.

But what is it that has changed these beds of dead plants into hard, stony coal? In the first place you must remember they have been pressed down under an enormous weight of rocks above them. We can learn something about this even from our common lead pencils. At one time the *graphite* or pure carbon, of which the blacklead (as we wrongly call it) of our pencils is made, was dug solid out of the earth. But so much has now been used that they are obliged to collect the graphite dust, and press it under a heavy weight, and this makes such solid pieces that they can cut them into leads for ordinary cedar pencils.

Now the pressure which we can exert by machinery is absolutely nothing compared to the weight of all those hundreds of feet of solid rock which lie over the coal-beds, and which has pressed them down for thousands and perhaps millions of years; and besides this, we know that parts of the inside of the earth are very hot, and many of the rocks in which coal is found are altered by heat. So we can picture to ourselves that the coal was not only squeezed into a solid mass, but often much of the oil and gas which were in the leaves of the plants was driven out by heat, and the whole baked, as it were, into one substance. The difference between coal which flames and coal which burns only with a red heat, is chiefly that one has been baked and crushed more than the other. Coal which flames has still got in it the tar and gas and the oils which the plant stored up in its leaves, and these when they escape again give back the sunbeams in a bright flame. The hard stone coal, on the contrary, has lost a great part of these oils, and only carbon remains, which seizes hold of the oxygen of the air and burns without flame. Coke is pure carbon, which we make artificially by driving out the oils and gases from coal, and the gas we burn is part of what is driven out.

We can easily make coal-gas here in this room. I have brought a tobacco-pipe, the bowl of which is filled with a little powdered coal, and the broad end cemented up with Stourbridge clay. When we place this bowl over a spirit-lamp and make it very hot, the gas is driven out at the narrow end of the pipe and lights easily. This is the way all our gas is made, only that furnaces are used to bake the coal in, and the gas is passed into large reservoirs till it is wanted for use.

You will find it difficult at first to understand how coal can be so full of oil and tar and gases, until you have tried to think over how much of all these there is in plants, and especially in seeds—think of the oils of almonds, of lavender, of cloves, and of caraways, and the oils of turpentine which we get from the pines, and out of which tar is made. When you remember these and many more, and also how the seeds of the club-moss now are largely charged with oil, you will easily imagine that the large masses of coal-plants which have been pressed together and broken and crushed, would give out a great deal of oil which, when made

very hot, rises up as gas. You may often yourself see tar oozing out of the lumps of coal in a fire, and making little black bubbles which burst and burn. It is from this tar that James Young first made the paraffine oil we burn in our lamps, and the spirit benzoline comes from the same source.

From benzoline, again, we get a liquid called aniline, from which are made so many of our beautiful dyes—mauve, magenta, and violet; and what is still more curious, the bitter almonds, pear-drops, and many other sweets which children like so well, are actually flavored by essences which come out of coal-tar. Thus from coal we get not only nearly all our heat and our light, but beautiful colors, and pleasant flavors. We spoke just now of the plants of the coal as being without beautiful flowers, and yet we see that long, long after their death they give us lovely colors and tints, as beautiful as any in the flower world now.

Think, then, how much we owe to these plants which lived and died so long ago! If they had been able to reason, perhaps they might have said that they did not seem of much use in the world. They had no pretty flowers, and there was no one to admire their beautiful green foliage, except a few croaking reptiles, and little crickets and grasshoppers; and they lived and died all on one spot, generation after generation, without seeming to do much good to anything or anybody. Then they were covered up and put out of sight, and down in the dark earth they were pressed all out of shape, and lost their beauty and became only black, hard coal. There they lay for centuries and centuries, and thousands and thousands of years, and still no one seemed to want them.

At last, one day, long, long after man had been living on earth, and had been burning wood for fires, and so gradually using up the trees in the forests, it was discovered that this black stone would burn; and from that time coal has been becoming every day more and more useful. Without it, not only should we have been without warmth in our houses, or light in our streets when the stock of forest-wood was used up; but we never could have melted large quantities of iron-stone and extracted the iron. We have proof of this in Sussex. The whole country is full of iron-stone, and the railings of St. Paul's churchyard are made of Sussex iron. Iron founderies were at work there as long as there was wood enough to supply them, but gradually the works fell into disuse, and the last furnace was put out in the year 1809. So now, because there is no coal in Sussex, the iron lies idle; while in the north, where the iron-stone is near the coal-mines, hundreds of tons are melted out every day.

Again, without coal we could have had few engines of any kind, and consequently few large manufactories of cotton goods, linen goods, or cutlery. In fact, almost everything we use could only have been made with difficulty and in small quantities; and even if we could have made them, it would have been impossible to have sent them so quickly all over the world without coal, for we could have had no railways or steamships, but must have carried all goods along canals, and by slow sailing vessels. We ourselves must have taken days to perform journeys now made in a few hours, and months to reach our colonies in distant parts of the world.

In consequence of this we should have remained a very poor people. Without manufactories and industries we should have had to live chiefly by tilling the ground; and every one being obliged to toil for their daily bread, there would have been much less time or opportunity for any one to study science, or literature, or history, or to provide themselves with comforts and refinements of life.

All this then, those plants and trees of the far-off ages, which seemed to lead such useless lives, have done and are doing for us. There are many people in the world who complain that life is dull, that they do not see the use of it, and that there seems no work specially for them to do. I would advise such people, whether they are grown up or little children, to read the story of the plants which form the coal. These saw no results during their own short existences; they only lived and enjoyed the bright sunshine, and did their work, and were content. And now thousands, probably millions of years after they lived and died; England owes her greatness, and we much of our happiness and comfort, to the sunbeams which those plants wove into their lives.

They burst forth again in our fires, in our brilliant lights, and in our engines, and do the greater part of our work on land and on sea; teaching us, as we look reverently, and with gratitude, upon the vast and wondrous plan of the Great Designer,

> That nothing walks with aimless feet,
> That not one life shall be destroyed,
> Or cast as rubbish to the void,
> When God hath made the pile complete.
>
> *In Memoriam.*

WILLIAM PENN AND WEST JERSEY.

WM. HEPWORTH DIXON.

1673–1678.

THE love of country, strong in nearly all men, was one of the most powerful sentiments of the English Puritan. But he had other and higher inspirations. His love of personal freedom—his claim to a free utterance for his thoughts—the determination to bend his knee only at the shrine which his conscience owned—these were instincts stronger in him than even the love of life. Not lightly or hastily did the real founders of empires in the New World turn their backs on the land which had given them birth. Years of accumulated wrong and insult were required to loosen their tenacious hold of the soil which had been ploughed and reaped by their Saxon forefathers; and when the cup of misery was full, they quitted the ports they were never more to behold again, with blessings on their lips, and with their faces, like their hearts, still turned towards dear old England, departing more in sorrow than in anger.* In the days of peace and concord, now and then recurring in the most unsettled times, the tide of emigration had always ebbed out slowly; but now that the act of indulgence had been cancelled by the King, and the fury of persecution began to fill the gaols and stocks with victims, attention was again directed to the plan, already carried out in part, for founding a New Home beyond the seas, away from the old political and religious rivalries of Europe; for the persecuted of all creeds and nations.

To William Penn this idea had been more or less familiar from his boyhood; but it had haunted him as a romantic dream rather than possessed him like a fixed passion. At twelve years old the victories of his father in the West Indies had first tinged his fancy with the splendors of American scenery,—during the retirement of the family in Ireland, after the admiral's disgrace, the subject of buyiug an estate in the New World had often been discussed in the social circle, —in his hour of excitement and disobedience at Oxford he had again turned to these earlier projects, and laid out a new Oceanea or Utopia in his fancy among the islands of the archipelago, or deep in the luxurious savannahs of the mainland—at the yearly meeting of his own religious society the settlement of Quakers in Jamaica, in New England, and on the Delaware, had been frequently discussed,—and the journey which he had still more recently made into Holland and Germany, had contributed to rouse and complete the gathering zeal of years. At Amsterdam, at Leyden, and in the cities of the Upper Rhine, his imagination had been excited by the perilous stories which he had heard from the relatives and friends of those who had bid adieu to Europe, crossed the Atlantic in their frail barks, and settled along the sea-board of the western world. The enthusiasm which these events had raised in his mind grew on him with years, and at length led him towards a practical trial of the Holy Experiment.

His first connection with the continent on which he was to build an enduring monument in the glorious form of a harbor of refuge for the oppressed of all nations, was in the affairs of New Jersey. The reader will not need to be reminded that during the reign of Charles Second, many of the English colonies and conquests in America were given or sold away to private proprietors; and in accordance with the principle of misrule then prevailing, the King made over to his brother James, Duke of York, the magnificent province of New Netherlands, stretching from the shores of the Delaware to Connecticut River, even before a single rood of the land had yet been wrested from the hands of the Dutch Colonists. Two months before the conquest, James in his turn had granted to Lord Berkeley and Sir George Carteret, in equal shares, the region lying between the Hudson and the Delaware. When the English forces took final posession of the country, the old names and boundaries were removed, and in honor of Sir George Carteret, late governor of the island of Jersey in the British Channel, the entire province received the appellation of New Jersey. As the object of nearly all the noble owners of these colonial estates was to wring as much money out of them as possible, it was soon seen to be their private interest to offer such liberal concessions—or constitutions—as would attract that crowd of able, energetic, and wealthy persons, who, suffering under the penal statutes of the old country, were anxious to find in the new land a field of enterprise and a shelter from persecution. Without, therefore, being in their own persons the advocates of civil and religious liberty, these speculators not unfrequently established in their colonial possessions enlarged and liberal fundamental laws —the lust of gain doing in their case the work of patriotism and virtue! The two owners of New Jersey having offered conces-

* "Farewell, dear England!" was the parting expression of the Pilgrim Fathers. Mather, l. 3, c. 1.

sions to settlers in this spirit, a number of Puritans already in New England set sail from the port of New Haven, with a view to establish themselves in the recently acquired territory, and having reached the Passaic, held a council there with the Indian tribes, changed the old name of the settlement to New Ark (Newark), and laid the foundations of a thoroughly democratic government. Under their free and vigorous rule the province rapidly increased in prosperity; the English Quakers began to take an interest in its affairs, and a few of them went thither to settle. But Berkeley in a short time grew dissatisfied with his position; disputes about quit-rents and privileges arose; and the noble earl found his ease disturbed by the murmurs and remonstrances of the men into whose hands he had passed away the reins of government. These troubles made him anxious to sell his share in the province; and as George Fox had just returned from a visit to the English settlements in America, the Quakers, on his report, opened a communication with Berkeley, who in the end agreed with one of their body, John Fenwick, agent and trustee of Edward Byllinge, for the sale of his share of the province for a thousand pounds. Before any steps, however, had been taken to draw public attention to this new settlement as a field of colonial enterprise, a serious dispute arose between the agent and his principal as to their respective shares in the purchase: Fenwick, a litigious and troublesome person, as is evident from his letters, contending that a certain allotment of the land should be made over to him and his heirs, to which Byllinge strenuously objected. This dispute was referred by common consent to William Penn. The letters still extant show that Fenwick was at first disposed to resist the award made by the arbitrator; but an earnest rebuke from Penn, in which he spoke in noble and affecting language of the meanness of such quarrels in face of the great interests they professed to have at heart, brought him to reason. "Thy grandchildren," said the expostulator to his grasping client, "may be in the other world before the land thou hast allotted will be employed."

The parties reconciled by these means, Fenwick, with his own family and a number of other Quaker emigrants, set sail in the ship *Griffith* for New Jersey. These adventurers ascended the Delaware a considerable distance, where, finding a fertile and pleasant spot of ground, they landed their goods and chattels, and formed the germ of a settlement, calling their town Salem; for to their harassed minds and bodies it seemed in truth a place of peace and rest. Meantime Edward Byllinge, left behind in England, became deeply involved in his circumstances; and unable to meet the demands made on him, his creditors grew clamorous, and at length compelled him to surrender his property into the hands of trustees for their benefit. But although obliged to give up the management of his estate to others, his creditors, having appointed Gawen Laurie of London, and Nicholas Lucas of Hertford, as trustees in their own behalf, allowed him to name one of his own friends as a third trustee for the protection of his interests; and William Penn was the friend whom he solicited to perform for him this important office. At first he was not disposed to add so large a responsibility to those already weighing heavily on his time and thoughts; but on considering that the principal part of the estate to be administered was the New Jersey property, on which a number of Qnakers and other exiles for conscience' sake had already settled, to whom his counsels would be serviceable, he consented to act. No sooner had he acquired the power which his new position gave him, than a change of system was observed. Full of his old dreams of a model state, and fresh from the study of Harrington and More, he was not content to carry on the government of the province as he found it, simply as a commercial venture, and without reference to the working out of great ideas. The lessons of Algernon Sidney had made a profound impression on the mind of the future lawgiver; and the constitution which his friend Locke had but a few years before formed for Carolina, was opened to him both as an incitement and as a warning. These first attempts to lay the foundations of a free colony for all mankind, to quote his own words, were greatly obstructed by the fact of there being a joint-ownership of the soil, as even within the limits prescribed by law, the trustees of Edward Byllinge could only exercise a semi-sovereignty while Sir George Carteret remained a copartner. The object, then, which lay in front of every future effort for the good of the settlers, was such a division of the province as should separate the share of Sir George from the rest; and this result was obtained by Penn after a troublesome negotiation, on giving up the best half of the estate to the agents of the older proprietor, which henceforward was known as the province of East New Jersey,—that retained by the Quakers being called from its geographical position West New Jersey. By

these names the two provinces were known for many years.

This arrangement being completed and the trustees left with power to deal with West New Jersey, they began their operations by dividing the land, then a complete wilderness, into a hundred lots, ten of which were made over to John Fenwick in lieu of all his claims for time, trouble and money expended in the transactions with Lord Berkeley, and the other ninety were put up on sale for the benefit of the creditors, whose material interests being so provided for, Penn acquired still greater power to carry out his own ideas in the great work of settling the fundamental laws. As yet the mind of the legislator was itself in the process of formation. The counsels of Harrington and the classic republicans still exercised a powerful influence over his conceptions; and it was not until some years later that his own genius—aided by Algernon Sidney—found its highest expression in the laws and charters of the great province which bears his name. The constitutions framed by the pilgrims who had sailed in the *Mayflower* were however the more immediate types of his first efforts as a statesman; he was too wise a man to trust so important a matter as the regulation of a new society to the mere suggestions of reason, unformed and unguided by experience, and he had been too assiduous a reader of the classic writers not to have learned to feel something of that Roman pride in free governments which so eminently distinguished his great friend and master.

The outlines of the new constitution prepared for West New Jersey by William Penn may be given in a few words:—the rights of free worship were secured (this was always the first point with the Puritan emigrants)—the legislative power was given in a great measure to the people, who were to elect their representatives, not in the old way of acclamation, but by the ballot-box, every man of mature age and free from crime being an elector and eligible for election—the executive power was vested in ten commissioners, to be appointed by the general assembly—the office of interpreting the law and pronouncing verdicts was confided to the juries, as Penn had contended was the case in England by the ancient charters; and the judges, elected for only two years at the utmost and always removable, sat in the courts simply to assist the juries in arriving at a correct decision—the State was made to charge itself with the education of all orphan children, and no man was to be shut up in prison for debt; his estate having been seized for the benefit of his creditors, the unfortunate was encouraged to try again: by these simple provisions, and the laws which were to be enacted in accordance with the general principles so laid down, Penn believed he had laid a foundation for those who came after him to understand their liberties as men and as Christians, and by observing which they could never be brought into bondage except by their own consent—the whole power of the State being placed in charge of the people!

While engaged with these new and important duties, Penn removed his place of residence from the neighborhood of Rickmansworth, in Hertfordshire, to Worminghurst, in Sussex. Less occupied at the moment with travelling and controversy than with the practical organization of states and the principles round which human societies form themselves, he required a home more free from interruption than his old house, which had gradually become the head-quarters and rendezvous of the Quaker body. To obtain this retirement, needed for sober and continued thought, he removed to Sussex, where in peaceful and profound tranquillity he worked out and perfected his scheme of government for West New Jersey. Guli's mother and father-in-law spent a portion of the summer and autumn of 1676 with them at their new house, and Isaac Pennington—the friend of Milton—possibly assisted in drawing up his relation's maiden constitution.

As soon as this important document was finished, the trustees met together and resolved on its immediate publication in the shape of a public letter, which they signed and circulated in every part of the country, but more especially among the members of their own church. To the letter was added a description of the soil, air, climate, natural productions, and other features of the new settlements; and it is characteristic of Penn that he added a cautionary postscript to his countrymen against indulging, without sufficient cause, in the thought of seeking for a new home—of leaving their native land out of curiosity, from a love of change, or in the mere spirit of cupidity. Yet Worminghurst was soon besieged with applications for plots of land in the new Free Colony, and this testimony to the merits of his plan encouraged the legislator to renewed efforts. Two large companies were immediately formed to establish trade and promote emigration, one in Yorkshire, the other in Middlesex. The members of the Yorkshire company were chiefly creditors of Byllinge; and as a set-off against all their claims, they received from

the trustees ten of the original hundred parts into which the province had been divided. By cancelling these debts, the property was gradually retrieved from its embarrassments, and its managers acquired a greater freedom of action.

The purchasers of those lands beginning at once to make preparations for the voyage, Penn's attention was drawn to the evident necessity which would arise for a governing body. Before there was as yet a people in West New Jersey, he saw that it was desirable to have an authority, legally constituted, to conduct the enterprise; and with this view he proposed to institute a provisional government—himself selecting some of its members, Fenwick's party and the two companies nominating the others. This being agreed to, Thomas Olive and Daniel Wills were appointed to act as commissioners by the London company; Joseph Helmsly and Robert Stacey by the Yorkshire proprietors; Richard Guy was named on behalf of the former emigrants; and to these were added Benjamin Scott, John Kinsey, and three others. These persons were to exercise the powers of the ten commissioners as defined in the fundamental laws, until such time as a popular government, chosen in a legal and orderly way, could be organized, whereupon their functions were to cease.

Since the sailing of the *Mayflower* no event had occurred of so much interest to the Republicans of England. William Penn took a great deal of pains in organizing the emigration, and engaged the good ship *Kent*, Gregory Marlow master, to carry out the commissioners, their families and tenants, to the number of two hundred and thirty persons. The vessel was moored high up in the Thames; at the hour fixed for her departure the emigrants went on board accompanied by their friends; and the master was just on the point of weighing anchor, amid the tears and embraces of relatives about to part forever, when a light and gilded barge was seen rapidly gliding over the smooth waters towards them. Something in the appearance of the *Kent* had evidently attracted the attention of its luxurious occupants, for the boatmen, now seen to be attired in the royal livery, used their oars as if they had been ordered to come alongside. It was the King. In a few moments the graceful libertine called to ask the name of the ship, and whither it was bound. On his questions being answered, he asked if the emigrants were all Quakers, to which they answered yes, whereupon he gave them, as Clarkson says, his blessing,—and so the monarch and subjects parted,—he to continue his low amours and his viler hypocrisies, they to plant a new spiritual democracy in the wilderness of the west. Each to his work!

Two other vessels soon followed the *Kent;* one of them sailed from Hull with a body of emigrants from Yorkshire, the other from London freighted with a hundred and fourteen persons from the northern counties. When the new comers arrived at their destination, Andros, the governor of New York, claimed jurisdiction over them and their territory, justifying his claim by reference to the feudal law and the colonial charters; but both parties fortunately were moderate in their tone, and while the question of rights was referred to the mother country, the Quakers entered into treaties with the aborigines for the purchase of their lands, and, under a sailcloth set up in the forest of Burlington, began to assemble for public worship.

The native tribes came from their hunting-grounds to confer with these peaceful strangers, who carried purses in their hands to pay for what they required, instead of muskets to seize on it by force. "You are our brothers," said the Sachem chiefs, after hearing their proposals, "and we will live like brothers with you. We will have a broad path for you and us to walk in. If an Englishman falls asleep in this path, the Indian shall pass him by and say—he is an Englishman; he is asleep; let him alone. The path shall be plain. There shall not be in it a stump to hurt the feet." Commenced under these promising auspices, West New Jersey soon exhibited an extraordinary degree of prosperity. Land was sold and cultivated. The Sachems remained on the whole friendly. The population multiplied in peace. Several deeply interesting letters written by the leaders of their party in England to these happy colonists are still extant, and from these it would be inferred that in a very few years West New Jersey had become a new Arcadia—that Penn had realized in practice the State which Sidney had conceived and which Harrington had dreamed!

—Having at length got these American affairs into a favorable state, Penn turned his thoughts towards the continent of Europe. He had many correspondents in Holland and on the Rhine: and in the cities formerly visited by him the congregations which had arisen implored him to return, if only for a brief season, and afford them once more the benefit of his wisdom and the example of his enthusiasm.

WILLIAM PENN ON THE HUSTINGS.

WM. HEPWORTH DIXON.

1678–1680.

LEADING men, seeing the uses to which a panic might be turned in aid of their private ambition, affected to give the Popish plot entire credence; and the astute Earl of Shaftesbury, from the first hour of its birth, took the plot under his especial protection. Danby also favored it from political and personal motives. It wanted not the countenance of men high in rank and office. "Whether given us by the right or left hand of Providence matters not," said one deeply interested in its success. It was a god-send to politicians; and because it served their purposes it was allowed to pursue its fearful course, though it sent a host of innocent men to the scaffold, and carried desolation into thousands of happy families.

Distrusting Danby, and aware of the tendencies of court opinion, Penn and Sidney were anxious to have the pretended plot thoroughly sifted, probably expecting that some of the royal intrigues, and especially the secret articles of the treaty of Dover, might come to light in the course of inquiry. This was the general feeling of republicans. They knew that the king was closely connected with the Catholic movement, and with the designs of the Jesuits; and, had the truth come out at once, he would have lost his credit with the nation forever. Charles himself believed—to a greater extent perhaps than was actually the case—that the attack on Popery was in reality an attack on royalty.

The Commonwealth men, a powerful party, at whose head Sydney and Penn now stood conspicuously before the world, silently but actively prepared for the future. Foreseeing that the intrigues of Danby and Montague would lead to a dissolution of Parliament, Algernon began to look about for a seat, and to prepare the constituencies for a more liberal and enlightened public polity. Penn himself could not so far renounce the opinions of his sect as to think of entering the House of Commons, but he was deeply concerned for the success of his friend and colleague.

He took up his pen and wrote three most excellent addresses. One of them was to his own body of religionists. Fearing, in the general consternation, lest some might be led astray, he exhorted them not to be drawn out of their sober course by rumors of plots and conspiracies, but to stand aloof, discharging their duties, in the perilous times which were at hand, as men and as Christians.

This done, he wrote an elaborate and masterly address to Protestants of every denomination on the existing crisis, and a brief tract, entitled "England's Great Interest in the Choice of a New Parliament;" the latter being more especially composed with a view to promote the choice of wise and liberal members at the approaching elections. In the first he reviewed the moral question. He began by showing the fallacy of vicarious virtue. If the people would be honestly governed, they must be honest themselves. Vice is the disease of which nations die. No just government ever perished—no unjust one ever long maintained its power. Virtue is the true life-principle of society. All history proves this; but although immorality is the great destroyer, a mistaken policy may be little inferior to it in mischief. Foremost among such errors is the attempt to interfere with the free course of thought. Act, not thought, is the subject of legal regulation. To denounce the mind's conception of such intangible but grand abstractions, as fate, free-will, election, and the like, is political insanity. Not less mischievous is the fallacy of measuring conduct by creeds. The true test of faith is practice. He who acts well, believes well. Morality is debased when tested from above. Virtue may be necessary to the state of grace, but grace is not indispensable to virtue. It is a grand mistake to disparage morality under pretence of looking to higher things. In this world there is nothing higher than goodness. Such is the substance of a remarkable work, written by this profoundly religious man.

His other work was entirely political. In its composition he was probably assisted by Sidney. They were much together at this time; and Algernon was a frequent and a cherished guest at Worminghurst. He begins—"All is at stake!" The crisis, he says, demands the utmost wisdom. The new Parliament will have the gravest duties: to investigate the plot and punish its authors; to impeach corrupt and arbitrary ministers of state; to detect and punish those representatives who had lately sold their services for money; to secure to Englishmen their ancient rights, by means of a bill to shorten the duration of parliaments; and finally, to ease Protestant dissenters. Such a work as this requires bold and able men. He then sketches his ideal of a man for the crisis, Algernon Sidney evidently sitting for the

picture. He should be able, learned, well-affected to liberty; one who will neither buy his seat nor sell his services; he must be free from the suspicion of ever having been a pensioner on court or minister; he should be a person of energy and industry, free from the vices and weaknesses of town gallants; a respecter of principles, but not of persons; fearful of evil, but courageous in good; a true Protestant; and above all, a man unconnected by office or favor with the court. Such is the pith of this work—a work widely circulated at the time; but the moment was one eminently unfavorable to wise and sober thought. The nation was in general ferment. From the hour of its birth the Popish plot had gathered strength. The court was torn by factions; and a well-merited impeachment for corrupt practices was hanging over the head of Lord Danby, First Minister of the Crown.

In this posture of affairs, the writs for a general election were issued. Deceived on so many sides, the nation was beside itself with excitement and apprehension, and persons of calm and philosophic views had little hope of obtaining the ear of the public; but Sidney was not a man to shrink in a good cause, even from the probabilities of a personal discomfiture. Once in the House of Commons, his party felt that his very name would be to them a tower of strength; and to give weight to his counsels, as the organ of republican opinions, they resolved to bring him forward as a candidate for a county town. A large body of electors in Guildford having pledged themselves to return him for that important constituency, he formally offered himself for the suffrages of its inhabitants.

Hitherto Penn had taken no personal part in politics. He had even refrained from using his own rights as an elector,—like many of his sect at the present day. It was repugnant to his habits, and his moral sense was offended at a scene of low corruption—the eating and drinking to excess, the revelries and disorders, the insolence of petty officials, the envy, malice, and all uncharitableness to which a popular election gave rise at that period. But when the interests of his illustrious friend were at issue, all these scruples went for nothing. For him, and for his cause, he would have done much more than merely devote a few weeks to canvassing electors, making liberal speeches, and rendering his countrymen more and more familiar with the principles embodied in the ancient charters of liberty.

The position which Penn assumed at this period, as the political friend of Sidney, and co-leader with him of the republican party, was one eminently perilous to his worldly interests. His account with the government was still unsettled. Neither the principal nor the interest of the large debts owing by the crown to the admiral, had been paid: and it was evident to all his friends that the final settlement of the claim would mainly depend on the favorable disposition of the royal brothers. It was obviously his interest therefore to stand well with the court. But how could this be possible so long as he acted with Algernon Sidney—a man who had not only borne arms against the Stuarts, in his more ardent youth, but who in his riper manhood still avowed himself a partisan of the Commonwealth? To lie under the least suspicion of a leaning to the Republic, was enough to ruin any public man in that age,—even the moderate and sagacious Sir William Temple was hated because he was surmised to be too much of Sidney's way of thinking. When his intention to stand for Guildford became known, the court prepared to oppose the candidature of the republican leader with all its influence; but Penn, convinced that he was one of the noblest spirits his age had produced, paid no respect to this hostile demonstration, and boldly put in peril the chief part of his worldly fortune, rather than stand apart and see his friend defeated by a court intrigue.

As the day of election drew nigh, the court party became active. Colonel Dalmahoy was sent down to stand in its interest; the mayor and the recorder of the town were bought or terrified; bribery, treating, intimidation, and all the baser practices of electioneering, were brought forth. Soldiers were discharged from the service on promising to vote for Dalmahoy. Non-residents were sought after and their votes taken. Paupers were made to tender votes for the court candidate. To make the Commonwealth men odious in the eyes of the mob, they were attacked with the foulest slanders:—Penn was accused of being a Jesuit, Sidney was branded as a regicide. For three weeks the town was a scene of indescribable confusion and disorder. Both parties feasted their supporters; the sternest political virtue in that age was held to be compatible with the amenities of cakes and ale.

At length came the day of election. In spite of every thing which the court party had done to seduce or intimidate the electors, Sidney had promises of a majority of votes. Penn went with his friend to the hustings, and made a pointed and powerful speech to

the assembled burgesses. The recorder could contain his wrath no longer. He shouted at the speaker that he was a Jesuit; but the coarse slander was received as a dull joke, and the people only laughed at their recorder instead of interrupting his intended victim. He then called for the New Testament and tendered him the oaths—well knowing that he would not take them—but Penn was the better lawyer of the two, and he quietly reminded him that the offer of an oath in such a place was contrary to law. At this rebuke he lost all patience, called for his myrmidons, and had him expelled the court by force.

This diversion came too late. Sidney had already secured a majority of suffrages. But having gone such lengths, and not daring to offend a sovereign who was in the constant habit of removing local officers and naming more pliant tools to fill their places—the recorder refused to make out his return, on the plea that he was not a freeman of the borough, though he had formally offered himself at the Town Hall, for the purpose of being made, on the previous day,—and declared Dalmahoy duly elected. Never was a more shameless transaction known. Of course, the liberals did not think of submitting to an act of such intolerable injustice. They held a conference of their friends on the afternoon of the election, at which it was resolved to petition against the return, and persons were appointed to watch the movements of the enemy and make reports. It was late in the evening when Penn parted with Sidney, but he had been from home some time, and was anxious about Guli and the children. As he rode along, his mind was deeply troubled at the scenes he had just witnessed—the profligacy and unfairness of the court party,—the wanton indifference of so many electors to the great interests of the time,—the contumely and wrong heaped on his noble friend, because he and his party "had a conscientious regard for England:" it was almost enough to make him despair of the old country. When he got home he found his family in good health; but instead of giving himself up, as was usual with him after a short absence, to domestic intercourse, he retired to his chamber and wrote off to Sidney the following note:

Dear Friend: I hope you got all well home, as I by God's goodness have done. I reflected upon the way of things past at Guildford, and that which occurs to me as reasonable is this, that so soon as the articles or exceptions are digested, show them to Sergeant Maynard, and get his opinion of the matter. Sir Francis Winnington and Wallope have been used on these occasions too. Thou must have counsel before the Committee; and to advise first upon the reason of an address or petition with them, in my opinion, is not imprudent, but very fitting. If they say that (the conjuncture considered, thy qualifications and alliance, and his ungratefulness to the House,) they believe all may amount to an unfair election, then I offer to wait presently upon the Duke of Buckingham, Earl of Shaftesbury, Lord Essex. Lord Halifax, Lord Hollis, Lord Gray, and others, to use their utmost interest in reversing this business. This may be done in five days, and I was not willing to stay till I come, which will be with the first. Remember the non-residents on their side, as Legg and others. I left order with all our interest to bestir themselves, and watch, and transmit an account to thee daily. I bless God, I found all well at home. I hope the disappointment so strange (a hundred and forty poll-men as we thought last night considered) does not move thee. Thou, as thy friends, had a conscientious regard for England; and to be put aside by such base ways is really a suffering for righteousness. Thou hast embarked thyself with them that seek, and love, and choose the best things; and number is not weight with thee. I hope it is retrievable, for to me it looks not a fair and clear election. Forget not that soldiers were made free three weeks ago in prospect of that choice (and by the way they went, as we may guess, for Dalmahoy's sake), and thyself so often put by, a thing not refused to one of thy condition. Of the Lower House the Lord Cavendish, and especially Lord Russel, Sir Jo. Coventry, Powell, Saychevrill, Williams, Lee, Clergis, Boskowen, Titus, men, some able. some hot (ardent) and fit to be nearly engaged in the knowledge of these things. 'Tis late, I am weary, and hope to see thee quickly. Farewell. Thy faithful Friend,

WILLIAM PENN.

The petition was prepared and sent in to the House of Commons. All over the country the terror of the plot had spread, and never before had the constituencies of England returned so implacable and intolerant a parliament. Another crisis soon came on. Monmouth had been sent into banishment and his mother branded as a wanton. These acts of the Catholic party added fuel to the flame:—and the House met in a most threatening mood. Its revenge was prompt. Danby was committed to the Tower. The Duke of York was banished the realm. The Whigs—as the party led by Shaftesbury and Russell may properly be called—were on the eve of a decisive victory—when Charles again suddenly dissolved parliament and appealed to the nation.

Sidney prepared to stand again, but not for Guildford. Penn rode about the southern counties, testing the feeling of constituencies,

and advised him to try his new fortunes at Bramber. It was a town in his own county:—in Kent, the very name of Sidney bore with it an assurance of success. Besides this gseat advantage, Bramber lay not remote from Guli's property, and the Penns had family and other friendly connections in the neighborhood,—the Springetts, the Ellwoods, the Faggs, and the Temples, from all of whom they counted on support. Penn went to work with his usual zeal, and in a few days he had engaged all these families in Sidney's interest. He had even hopes of enlisting the Pelhams in the same cause,—though in a recent county election he had opposed that family in favor of Sir John Fagg. As soon as the writs were out he went down to Bramber, and made it his head-quarters until the election was over. Alert and ardent, he soon communicated his own zeal to others, and with Sir John Fagg and Sir John Temple commenced an active canvass of the electors under most favorable auspices. When he spoke of the virtues and genius of Algernon Sidney, the borough kindled at his eloquence. From morning until night he was at work; he spared no exertion to secure success; he made interest in every house; and kept Algernon, who was still in London, informed of his progress. Two other candidates appeared in the field, Mr. Parsons and Captain Goreing; but they who knew the town best considered his return at the head of the poll as certain.

In this emergency, the court, nervously anxious to keep the great republican out of parliament, had recourse to the vilest arts. Knowing the influence which the name of Sidney exercised in Kent, the Earl of Sunderland, Penn's old friend and fellow-traveller, now become minister to Charles, and the wily genius who directed every movement at the palace, resolved to oppose brother to brother—to array Sidney against Sidney. His uncle Henry was weak by nature—was politically opposed to his illustrious brother—and only too willing to please the King at any price. Recently he had received some proofs of royal favor, and had reason given him to hope for more. He had been graciously allowed to buy Godolphin's place of master of the robes for six thousand pounds; and he had just been sent to Holland, as envoy extraordinary to the Prince of Orange, where he hoped to lay the foundations of a future fortune. He could not quarrel with Whitehall, except at the peril of his worldly hopes; so he allowed his name to be used by his brother's enemies, and scandalized the family through the entire county.

When this design of contesting the election was first whispered at Bramber, Penn would not believe it. But he knew the danger, should the report prove true—as its first effect would be to carry the Pelham interest to the other side. He felt that no time was now to be lost, and in this state of doubt as to the real quarter from which resistance would come, he wrote to urge Sidney to come down at once to the borough:

Dear Friend.—I am now at Sir John Fagg's, where I and my relations dined. I have pressed the point with what diligence and force I could; and, to say true, Sir John Fagg has been a most zealous, and, he believes, a successful friend to thee. But, upon a serious consideration of the matter, it is agreed that thou comest down with all speed, but that thou takest Hall-Land in thy way, and bringest Sir John Pelham with thee—which he ought less to scruple, because his having no interest can be no objection to his appearing with thee; the commonest civility that can be is all, [that is] desired. The borough has kindled at thy name, and takes it well. If Sir John Temple may be credited, he assures me it is very likely. He is at work daily. Another one, Parsons, treats to-day, but for thee, as well as himself, and mostly makes his men for thee, and perhaps will be persuaded, if you two carry it not, to bequeath his interest to thee, and then Captain Goreing is thy colleague; and this I wish, both to make the thing easier and to prevent offence. Sir John Pelham sent me word, he heard that thy brother Henry Sidney would be proposed to that borough, or already was, and till he was sure of the contrary, it would not be decent for him to appear. Of that thou canst best inform him. That day you come to Bramber, Sir John Fagg will meet you both; and that night you may lie at Weston, and then, when thou pleasest, with us at Worminghurst. Sir John Temple has that opinion of thy good reasons to persuade, as well as quality to influence the electors, that, with what is and will be done the business will prosper; which, with my true good wishes that it may be so, is all at present from thy true Friend, WILLIAM PENN.

Sir John Fagg salutes thee.

As soon as he had despatched this missile he wrote another letter to Pelham to protest against the scandal of Henry's name being used in his absence to the prejudice of Algernon,—and expressed his fears that this ungenerous act would lead to still greater feuds in the Sidney family. To this remonstrance Sir John Pelham paid little regard. Sunderland moved the wires at his will: and under the powerful influence of feasting and drinking—the Pelhams contributing half a fat buck to that end—when the day of election came, Henry obtained exactly as many votes as his brother, who nevertheless received the casting voice, and was declared

duly and rightfully returned. Penn now considered his friend as fairly about to take his seat in the House, where his counsels and his example might be of the most signal service to his country; and although few other republicans were returned, their party generally were satisfied with their leader being once more in parliament. But as soon as the House met, the return was annulled by an intrigue of the royalists, and their joy was turned into wrath and indignation. A second time elected of his countrymen, in spite of all the devotion of friends, and never man had truer, Algernon Sidney was rejected.

This second disappointment seems to have made a still more profound and lasting impression on the mind of Penn. It almost drove the remembrance of Guildford from his thoughts. That a stranger like Dalmahoy should be found willing to take unfair advantages of an honest adversary—that a petty official, whom the court could make or unmake at pleasure, should be eager to sully his own fame rather than risk the emoluments of his place—these were conceivable. But that a nephew and a brother—members of an illustrious house, and men whom he had himself known for years—should willingly lend themselves to serve the purposes of a base cabal, to the scandal of the county and the dishonor of their own blood: this appeared to him inconceivable. When the nearest relatives of Algernon Sidney would not pause at such an act of baseness, what was left for virtue and integrity but to flee away from a land so cursed as England!

His regard was now turned more and more steadily towards America. He had made one great struggle more at home—and it had failed. But he did not despair of Freedom. Experience had convinced him that in the new world alone was there room enough for that great trial of a free Democracy which formed so prominent a feature of Sidney's conversation. That in an open field, the experiment of a Commonwealth, in which the whole power lay with the people, however the idea might be ridiculed in that age of political infidelity, would succeed and flourish, he had no doubt; but finding no reason to believe that such a trial could be brought about in England, he adopted the romantic resolution of giving up his fortune and his future life to its realization in the new world.

A long and cogent train of incidents had led him to this great resolution. Once formed, it was put into immediate course of execution. In lieu of the money owing to his father, he proposed to the King's council to take a certain amount of territory on the Atlantic sea-board and in the interior of the country, as had been done at various times by other of the great colonial proprietors. The tract of land included in his petition was then a huge wilderness, with only here and there, at vast distances, a solitary house of wood and thatch, tenanted by some enterprising Dutch or Swedish family; and the hush of nature lay unbroken for hundreds of miles, except by the occasional cry of the Indian hunter. To this unknown country he proposed to lead out a colony of pious, liberal, and industrious citizens, to seek those fortunes and enjoy those liberties in the new world which the evil passions of the older world denied them. There was a touch of classic chivalry in such a thought. The young soldier of Kinsdale, with the adventurous genius of his race, would re-enact in modern times, the feats of an ancient hero of romance.

But this was the least part of his design. He wished to provide out of that wilderness a Free Colony for all mankind—an original and an august conception: one which will keep his name forever in the best memories of mankind. His experiment was to bear witness to the world that there is in human nature virtue sufficient for self-government. In the colony of his brain he was resolved that there should be equal laws. The entire sovereignty—judicial, representative, administrative—should rest with the people. Every office of government should be discharged by men elected to their functions, and paid out of the public revenue for their services. The state should employ the best of servants, but admit of no masters. There should be no difference of rank—no privileged order—in this new community. In his generous enthusiasm for equal rights, Penn forgot that some of these ideas were incompatible with the laws and constitutions of England. In the Utopia conceived in his mind, he had resolved that there should be no power, not even his own, above the law. Justice should be equally administered. To the natives of the soil he would offer protection, the useful arts, European comforts, and above all the Christian gospel. The spirit of love brooded over all his projects. Universal freedom of the conscience—perfect equality of political and civil rights—the most sacred respect for personal liberty—and a full regard to the rights of property; these were the chief points of his scheme of colonial government.

The design was as grand as it was novel: in every sense it was worthy of the friend of Algernon Sidney.

STRAIT-JACKETS.

BY W. A. BEER.

I HAVE no strait-jacket incidents to relate. I shall not even attempt to describe that instrument of torture, which has so frequently adorned the body of the madman: but I shall try to show you that a man can make a strait-jacket of another's way of doing things; and this is the instrument of torture that now demands our attention. The points which are likely to be made strait-jackets are:

1. *General Management.*
2. *Course of Study.*
3. *Spelling.* — Spelling around the class. Pointing out a pupil to spell a word. Spelling by commencing at the middle of the class, and spelling up and down the class. Spelling in concert.
4. *Reading.*—Have the pupils read stanza after stanza, until a lesson or chapter is finished. Let one read until called down for making a mistake, then another read, etc., etc. Drill the class until they are familiar with one paragraph, then let them read it in concert, then by twos, then singly, then finally let them commit to memory and declaim it. Have some favorite piece, and drill on only one paragraph each day. Let the class choose sides, and correct each other. Let each scholar in the class have a blank-book, in which he shall write one rule each day, which has been dictated by the teacher, then commit it to memory. Read a paragraph to the class, then have one of the best readers read it. Teach the pronunciation of words by pointing off their syllables.
5. *Geography.*—The teacher asks questions, pupils answer. Teach by map-drawing, outline, or topic. General and special outlines. First method for descriptive Geography—Mountains, rivers, other bodies of water, islands and capes, capital, and other important places. For what noted. Second method for same—Position, form, size, relief, drainage, climate, vegetation, products, animals, inhabitants, employments, constitutions, important places. Then an outline for map questions, to accompany this. Teach by having the pupils write letters describing a trip, or by having them tell what they can see from a certain mountain, etc.
6. *Arithemetic.*—Have pupils commit rules and definitions; have the pupils solve the problems in the book. Teach by outline or according to a prescribed "course of study."
7. *Grammar.*—Have pupils commit rules, definitions, etc. Teach wholly by parsing and analysis. Teach by "language lessons."
8. *Writing.*—Teach by setting copies without giving attention to *system.* Teach according to some system, from copy-books, from the blackboard.
9. *History.* — By topics, by question and answer, by uninterrupted recitation, by written recitation, by reciting from maps, by volunteer recitation, by historical essays.

Now, fellow-teacher, many of these methods are excellent, but don't make a strait-jacket of them. If you have a good method of teaching some branch, don't buckle it around you so tightly that you cannot feel the sharp corners of other methods, with which other teachers occasionally give you a gentle reminder. If you are a college graduate, don't stick to the old college curriculum; and don't think that other teachers don't know anything, because they have never been to college. If you do carry the sheep-skin from a Normal School, don't forget to consider that, perhaps, that young man who has never been out of his own county, may have a much better way of teaching spelling, reading, arithmetic, or grammar, than you have.

Some one may ask: "Do you belong to that class of individuals that would deride the 'method teacher'?" "Are you of that class that say, 'all that is necessary to become a good teacher is to attend a good school, learn how to study, go ahead, profit by experience, and rely on innate gumption'?" No, I do not belong to either of those classes of individuals. I believe in gumption. It is a good thing to have; but it will not teach a man intuitively to teach geography, arithmetic, or grammar. We must learn how to teach from those that know. We must know how to deal with the mind, how it grows, its diseases and how to treat them. To know these things, and what to do with them, we must understand "methods." We must receive instruction in them, and then try to use them. No, I do not decry methods, nor their use; but I do decry their abuse, the making of hobbies, the putting on of a great, ugly strait-jacket.

I do not oppose methods, and I would not bestow the royal title, teacher, on those that do; but I would say, in the language of another, Hang the mill-stones of their self-conceit about their necks, and drown them in the depths of the sea of their ignorance.

We must observe methods; and of these the first should be general methods. We have general methods, special methods, and personal methods. General methods underlie the whole science of instruction, and are for all times, places, and persons. General methods require no proof; they admit of no discussion; but they are as firm and unchangeable as the science of instruction itself.

Notice a few general methods:—(1) Self-evident, as: Never tell a child what he already knows, or what he can just as easily

find out himself. That method is best which leads the pupil to investigate for himself. Attention must be cultivated as a basis of memory. Obedience is a fundamental law of teaching. (2) Not self-evident: A knowledge of how we think, and how our pupils think. What the mind is, and how it acts. How to impart knowledge in the fewest words. How to influence the mind, and mould character. These, fellow-teacher, are general methods. The last ones belong to the philosophy of education, and call forth the highest powers of thought.

With regard to special methods, their name is legion. Every teacher has special methods. They are held up in our institutes, and our Normal schools have thousands of them. There are special methods of teaching this branch and that, of keeping order, of regulating whispering, etc. Some are good: many are worse than trash.

How self-conceited some teachers are on their special methods! They seem to imagine that they could revolutionize the world with them if they only had a chance. Away with the teacher who will get up, in an educational meeting, and bore his auditors by setting forth his or her special methods; for I tell you, teachers, I must wear my own shoes while teaching. I cannot stumble along in yours, just because yours happen to fit you better than they would me. Each teacher should be a law to himself—should be himself, and nobody else.

Now, a word about personal methods. They are inborn. Without our own thoughts and actions, consolidated into personal methods, we are not ourselves. Who is the teacher that fails? It is he who does not depend upon himself. It is he who goes to institutes, and fills his note-book with outlines of how to teach, then goes into the school-room and starts the school machinery, and runs it just so, merely because that is the way Mr. A. or Miss B. would do it. If I try to act as you do before a class, I shall fail to teach that class satisfactorily, because your actions are natural, while mine are simulated. Our peculiarities, which happily are possessed only by ourselves, are helps to us, if they are the legitimate offspring of true human nature. These peculiarities cannot be communicated; they must be a part of our being, and each must be himself.

—o—

What though to-day
Thou canst not trace at all the hidden reason
For His strange dealings through the trial season,
Trust and obey;
In after life and light all shall be plain and clear.

WISHING AND WILLING.

PERHAPS of all the familiar ways in which weakness makes itself apparent, none is more common than that of *wishing*. A wish and a desire are not quite synonymous. A strong desire, when it fills the mind, usually leads to action; but a wish is of feebler material, and expends its force upon itself. There are some people whose very existence seems to be one long series of wishes. They wish the skies were brighter, and the air softer, and the temperature warmer or cooler, as the case may be. They wish for some sudden stroke of fortune which never comes; they wish to be wealthy and powerful, but fail to put forth energies necessary to become so; they wish for friends without being friendly; for the respect of others without respecting themselves; for all the various results of labor and effort without performing the labor that would bring them.

Such people do not always confine themselves to wishing for objective advantages; they often wish for subjective qualities. We hear them continually lamenting their own deficiencies, and wishing they were more industrious and economical, more prudent and wise, more patient and self-controlled, more energetic and resolute. Getting glimpses of their folly, they will even, at times, wish they could leave off wishing; but the habit is too strong, and they continue to indulge in a course which their reason unhesitatingly condemns. The very expression which they give to this feeling feeds and nourishes it. The man or woman from whose lips the words "I wish" are forever issuing is sure to come sooner or later to the painful conclusion that for some reason or other his or her wishes are likely to remain forever unfulfilled.

On the other hand, he who *wills* is of an entirely different type. He, too, desires certain things earnestly; but spends no time in vainly wishing he had them, or in expatiating upon the fact. He realizes that he has within himself a stock of unemployed forces, which from time to time he draws upon, and he takes care that his drafts are always honored. He understands that in order to master any business he must first master himself, and thus he guides the helm of his appetites and passions, instead of drifting with them. He counts the cost of each projected enterprise, and takes stock of his abilities to carry it out. If he finds it to be beyond his power, he resigns it, and ceases to wish for it, or at least to give utterance to the wish. If, however, he determines upon it, it is with

a firm resolve to accomplish it, which renders all wishing superfluous.

These two classes may be seen every day side by side. One business man wishes his trade were larger, his accommodations were better, his clerks more faithful or capable, his customers more numerous or easily satisfied. He often utters these wishes, and mingles them with complaints and regrets; yet none of these things seem to be materially altered. He continues wishing, and the sources of his dissatisfaction remain. Another, in the same circumstances, instead of pausing to wish for these changes, *wills* them; that is, he studies the causes which underlie his troubles, and proceeds prudently, but steadily, to remove them. He sets in train measures calculated to extend his business, to ensure fidelity from his employés, to regulate his expenses, to quicken his sales. Whatever it be that he sees is desirable, he plans for and endeavors to carry out. If he finds it beyond his power, or, for any reason, unadvisable, he dismisses it from his mind, knowing that idle wishing is worse than useless.

One mother and housekeeper wishes that her house was in better order or more tastefully arranged, that her servants were more competent and faithful, that her children were more obedient and orderly, that she could exercise hospitality without nervous apprehensions, and find time for the many duties that weigh upon her mind. She frets and complains, and longs for better things, but they do not appear. Another, taking a calm survey of the situation, finds that some of her desires are, at least for the present, extravagant and impossible, and others reasonable and practicable. The former she abandons at once, the latter she *wills* to achieve. She studies causes, lays plans, tries experiments, brings all her penetration, her judgment, and her energy to bear upon the work, and gradually conquers her difficulties and realizes her desires.

Of course, wishes as a whole are not to be reprehended or crushed. They are at first natural and right, and, if used properly, will serve a good purpose. They are suggestions, neither to be disregarded nor implicitly obeyed, but judged and sorted with discrimination. Some are futile and impossible of attainment, and need a speedy dismissal. Others are excessive, and need pruning down. Others are reasonable and right, and should receive prompt attention. But they should in any case be transient guests. They have certain messages to deliver, and their mission performed, they should pass out of sight and out of mind. It is the permanent mental condition of wishing that we should guard against. It is not only foolish in itself, but it enervates the mind, enfeebles the powers, and palsies the will. If reason justifies the wish, let it be at once translated into will power, energy, and practical action. Nothing so thoroughly dispels an unwholesome reverie as a determined purpose and vigorous activity. *Phila. Ledger.*

WASTED FORCES.

AN interesting article on "Wasted Forces," by William H. Wahl, Ph. D., in the *Popular Science Monthly* reads more like the pages of a romance than the sober statement of scientific achievements and possibilities. The special purpose of the paper is to call attention to the possibility of utilizing for practical purposes certain great natural forces which have hitherto been allowed to waste themselves in unproductive idleness. As an illustration of what has already been accomplished in this direction, and as an evidence that the scientific possibilities suggested are not merely the wild dreams of unpractical theorists, Mr. Wahl points out that modern science, taking pattern by nature, which allows nothing to be absolutely lost, has succeeded in a hundred different industries in saving and utilizing materials and forces which formerly were allowed to be wasted.

The glycerine industry, which has attained colossal proportions, is a notable illustration of a great manufacture based entirely upon the saving of what until lately was a waste product of the soap-boiler. As even more important I may mention the industries connected with the manufacture of aniline dyes and artificial madder from the refuse coal-tar that was formerly the curse and nuisance of the gas-works. So, too, old boots and shoes, scraps of all kinds, sawdust, oyster-shells, waste ashes, and even the mud from the bottom of rivers, have all been gathered up by the grand economy of science, and by its thousand arts and processes made to do anew useful and practical service.

But wonderful as are the results already accomplished, they are as nothing to those which seem more than possible in the future. Not content with saving the fragments that great human industries leave behind them, science proposes to utilize what Mr. Wahl calls the "waste forces of nature." The first of these forces, from the magnitude

of the possibilities that advanced thinkers have attached to it, is that fountain of all terrestial energy, our sun.

"I desire you to conceive," says Mr. Wahl, "of the amazing fact that the stupendous aggregate of terrestrial activity is derived from that infinitesimal fraction only of the solar emanation that is intercepted by the earth—a fraction less than the two billionth part of the sum total of energy that is unceasingly radiating into space; and it is my immediate purpose here to invite your attention to the interesting question whether it is within human reach to convert a portion of the measureless floods of power that the sun pours out upon the earth into mechanical energy, or into other forms in which it will be more directly available for useful purposes."

As showing the immense "floods of power that await the bidding of the compelling genius of invention" in this direction, the solar heat which falls upon the ocean alone "raises during every minute an average of not less than 2,000,000,000 tons of water to a height of three and a half miles—the mean altitude of the clouds. To express this prodigious exercise of power in more familiar form, I may put it in this way, that to continuously raise this weight of water to the height of three and a half miles per minute would require the continual exercise of the force of 2,757,000,000,000 horses per minute."

Another of these great natural forces which science hopes to chain to its triumphal car and compel to minister to human wants and comforts, is the wind; and though Mr. Wahl admits that this may be a more difficult task than that of harnessing the sunbeams, he still thinks that there are great possibilities and even probabilities of making the wind, which has hitherto been accustomed to blow whithersoever it listed, blow as science may please to dictate. But the last suggestion is, perhaps, the most startling of all. It touches the feasibility of "transmitting mechanical power to great distances by converting it into electricity through the agency of what are called dynamo-electric machines, and utilizing this either for the production of powerful lights for illuminating cities and towns, or by converting it back again into mechanical power with the aid of magneto-electric engines, by which mills, factories and workshops may be furnished with the power they now obtain from steam or water."

The great falls of Niagara, it is asserted, might be utilized in this way, and two Philadelphia savants declare that "it would be possible, should it prove desirable, to convey the whole power of Niagara to the distance of 500 miles or more by means of a copper cable not exceeding a half-inch in thickness." Were it not for the "accomplished facts" of science, in whose presence we stand, we should be disposed to regard these speculations with utter incredulity. But in full view of the wonders which actually surround us, who can set the limits to scientific invention?

HEAT: LESSON IN PHYSICS.

BY GEORGE L. SMITH.

TEACHER: The sun, fire and friction, are sources of heat; some substances are good and others bad conductors; and advantage is taken of these facts in the selection of clothing, the construction of implements, and, by nature, for the preservation of life. But these examples give us only a slight idea of what heat is doing for us, and how dependent we are upon it.

I have opened this window (on the leeward side of the house) at the top and bottom, and will hold this lighted candle, first at the bottom and then at the top. Notice which way the flame bends from the wick.

Pupil.—At the bottom of the window it bends into the room, and at the top it bends out.

"What makes it bend?"

"There must be a draught of air moving it."

"Then what is the direction of the draught at these two places?"

"It must be *in* at the bottom and *out* at the top."

"Let me try it at the door in the same way."

"The air goes *out* at the top and comes *in* at the bottom, just as it did at the window."

"Now I will hold the candle at the middle of the doorway, and you see it does not bend either way: what does this show?"

"It shows that the air is not moving out of the room or into it, except at the top and bottom of the opening."

"If I were to let go of this feather outside, where the wind is blowing, would it fall to the ground?"

"No; the wind would carry it away."

"What is the wind?"

"It must be air."

"But is there no air about you when the wind is not blowing?"

"Yes; but it is quiet."

"Then *wind is air in motion.* Which way would the feather go if I let it drop?"

"The way the air is moving."

"I will let go the feather which I am holding over this cold stove: what becomes of it?"

"It drops on the stove."

"Now I will light the fire in the stove and let it get heated. While it is heating, let us try the same feather over this lamp. Before it is lighted you see that it falls just as it did over the cold

stove. But now I have lighted it, see what becomes of the feather."

"It goes up."

"Why should it go up now, when it went down before?"

"The air must be moving up."

"And what makes the air move up?"

"You have heated it."

"Yes; the heat of the flame heats the air and causes it to rise so rapidly that it blows the feather in that direction, and so you see it does over the stove, now that it is hot; and the hotter the air gets the faster it moves up. So we may learn from this that *heat causes air to rise.* Your bodies are warmer than the surrounding air most of the time, and the air in contact with them becomes heated and rises; so that if you could see the air, you would see it rising over your heads all the time; but your bodies heat it so slowly that it rises slowly, and will not blow the feather up as the lamp did. Let us see now what is happening to the air in this room. So many of us must heat the air considerably, and the stove is helping to heat it. What becomes of it as it gets heated?"

"It must rise to the ceiling."

"And when I open the window at the top it goes out to get up higher. What proof have you of that?"

"It blows the flame outwards."

"But while this is going out, what is left in the room?"

"Other air is coming in at the bottom to take its place."

"And how do you know this?"

"It blew the flame of the candle in at the bottom of the doorway and window."

"If we have a fire in the fireplace, tell me what effect it will have upon the air in the chimney."

"It will heat the air in the chimney and cause it to rise."

"This causes what we call a *draught* in the chimney; but where does the air come from which takes the place of that which has been heated and gone up the chimney?"

"It must come from the room."

"And what replaces that air?"

"If the doors and windows are open it would come from outside, but if they were closed I don't see where it would come from."

"The cracks around the windows and doors generally admit air enough to keep up the draught, and at the same time ventilate the room; but sometimes we have to open them to increase the draught. Now, suppose that one hundred acres of this land would become very much heated, as it does sometimes by the sun, what effect would it have upon the air over and around it?"

"The air over it would become heated and rise, while that around it would rush in to take its place."

"And if you were standing outside of the hundred acres, would you notice that the air around you was moving?"

"I suppose that I would think the wind was blowing."

"Yes; that is the only way you would know it; and now you have learned what wind is, and what the chief cause of winds is, viz.: Some portion of the earth's surface becomes more heated than another, and the air over that portion rises, then the air around it rushes in to fill its place, and this movement of the air is wind. If the earth in this portion becomes very much heated, the air rises rapidly, and the colder air rushes in as rapidly and produces high winds; but if it is only slightly heated, the cold air moves slowly, and we have gentle breezes."

MECHANISM OF MAN.

WONDERFUL ADJUSTMENT OF THE HUMAN MACHINE.

DR. O. W. HOLMES' instructions in the Harvard Medical School have generally been given in the form of extemporaneous lectures, illustrated by anatomical preparations, models, pictures, and diagrams. In exceptional cases written lectures have been prepared. His professional literary labors have not been limited to these discourses, however, but have been productive of numerous contributions to the medical journals, occasional addresses before assemblies of medical men, and a few published volumes. Of the mechanism of man, and the wonderful adjustment of the human machine, he says, as the poet-scientist might be expected to say it:

"Already in the first man who trod the soil of our planet the great mechanical and chemical discoveries of uncounted coming ages were anticipated. His tissues were woven in a loom no Eastern fingers, no Western machinery, could rival. Where strength was needed, a power of resistance like that of iron was given strands of fibre finer than the spider's thread, seen only as it glistens in the sunbeam. Where elasticity was wanted, a substance like caoutchouc exuded and solidified. The pillars which support his frame would crumble under it were they not many times stronger in substance than the columns which support his temples. The leverage of his limbs is adjusted to his needs with an audacity which no engineer would venture. The hydraulics of the circulation are but clumsily imitated in our aqueducts and their distribution.

"And what are all the floodgates of human contrivance compared to those delicate translucent valves which we were so recently studying, which stand guard at the mouth of the great artery and arrest the solid column of blood coming back upon them like the blow of a hammer, day and night, 70 times a minute for 70 years, and as many more as

life may spare us? Man is more than a machine, but as a machine he is an ever-present miracle. His heart is a time-keeper which counts the seconds for a century with one winding up. The heating apparatus of our dwellings in the surface of its radiators and the pots of its furnaces only repeats the valvulæ, conniventes, and the villi of our mucous membranes.

"No telephone conveys a message so faithfully as the membrane of the tympanum transmits it to the listener in the recesses of the labyrinth. No steam engine can work with so little fuel as the human organism; no dye-house can reproduce the glow of a youthful cheek; no laboratory can manufacture a grain of albumen; no musical instrument can reach the human heart like a woman's voice; no lens can adapt itself to light like the human eye. And so we come back to the microscope, the perfection of which was developed by imitating as it best might those achromatic arrangements, the darkening pigment, the diaphragm, the adjustments for distance, which were all complete in the first man who opened his eyelids on creation."

HOW TO TEACH CHILDREN.

THE teaching of the first grade has been for some time the object of my study, because I look upon it as the foundation of all our work. In every-day life we meet with comparatively few people who cannot read; and, if reading were the sole criterion of intelligence, we might unhesitatingly call this decade a very intelligent one; yet, if we examine critically the language many use to express their thoughts, or consider how they understand the ideas of others, presented to them orally or in print, in a word, how they speak and reason, we shall find ourselves under the necessity of confessing that our generation is rather behind in that beautiful and pointed laconic mode of expression, in which the Spartans three thousand years ago excelled.

The art of reading is certainly a key by means of which we may unlock, if so inclined, the great vaults in which the ages have deposited the result of their learning and wisdom, and without any assistance but a thirst for knowledge we may attain to the position of a luminary in the galaxy of the learned.

But does the art of reading also instil unconditionally a thirst for knowledge? If so, why do the majority of our school children, who are taught it from the very first day of their school life, entertain rather a dislike than a love for their books? And this is a fact which every teacher experiences, if she lets her pupils decide for themselves whether they will rather read a beautiful story or have the teacher relate it to them. In nine cases out of ten, they will unanimously decide for the latter.

If this be admitted to be true, the very important question presents itself: Can the school be expected to conquer such dislike, and how may it be done? I am free to answer the first part of the question in the affirmative, and shall also endeavor to show how it may be done; but first let me call your attention to the phenomenon which has doubtless come under the observation of most of us.

Let us take a boy of eight coming to school for the first time, perfectly illiterate, but possessed of common sense, who is put into your lowest class, *i. e.*, among children of six. Do you not always find that such a child will learn to read remarkably fast, and not only be, in a very short time, equal to the best of his class, but even catch up with children of his age, who have spent two years at school when our boy enters it; and in most cases this boy will be found superior in observation and understanding, and in expressing his own thoughts.

Very few teachers, if any, will deny the above illustration to be one of everyday occurrence. The cause of this cannot be well looked for in the advanced age of the boy, nor in his bodily development, for the very reason that school children of six grow older and develop also; it cannot be said that the boy has intelligent parents, relations, etc., for such is the case with six year-old school children too, and besides, the intelligence of the teacher is often superior to that of many parents. Is it then the child's absence from school which has worked so much in his favor? Not necessarily so. But it is certainly the development of thought and speech, which the boy has experienced during the two years which others have spent at school spelling and reading.

The little six-year-old has no correct idea of the subject of which his lesson in the primer treats, while the boy of eight, just entering school, knows at once that the sentence, "It is an ox," refers to a little picture opposite it, representing an ox. He knows probably something about it, and a whole chain of ideas starts in his mind, while reading this and similar sentences; he is eager to know more about it, and learns fast to read and to spell.

Our boy was taught by nobody, he did not know a single letter; but he had used his senses, he had observed, reflected on objects which interested him, and had spoken whenever there was something to communicate. Should our schools, perfect in many respects as they are, not be able to do more and better work than mere chance? Assuredly so. We can do it, if we condescend to copy after nature. And now I return to the question, "How may the dislike toward books be conquered in schools?"

Children upon entering school encounter a book with black characters, all arranged in straight lines, and now and then a black picture—it is the primer. In it they read continually the ideas of others, and spell the words—for little children certainly a dreary work; and it cannot be wondered at that they are glad when the recitation is over—they will naturally look upon books as their privileged tormentors. Take away these tormentors from the first grade entirely. Make the children speak. Show them objects or pictures, and lead them to produce oral compositions; tell them stories about the pictures, and have them relate them to you in return; and verily you will see bright eyes, smiling faces, and hear intelligent words and phrases enough in your room. Do not fear that the pet child of our schools—discipline—will suffer by this; for a soft word from a teacher, who is a source of so much joy to the little ones, works wonders in an animated class. Change the subject frequently; take objects from nature, especially animals and living plants; explain their mode of existence, etc.; and thus the first grade might well be excused from a lesson in "natural science" lasting an hour. This mode of teaching the first grade will stock the minds of the little children with a vast amount of knowledge, received directly through the senses; it will lead them to form combinations, draw comparisons, and will, under the guidance of a careful and intelligent teacher, train them to express their thoughts in concise and correct language.

Combine with this, singing, arithmetic, drawing, writing and reading script, and you will have children whose mental faculties are amply prepared for the introduction of books, and who will thank you for the valuable gifts which will gratify their aroused appetites for knowledge, commanding, as they do, a goodly portion of it already.

At this stage, the art of reading will not only be very readily acquired, but it will also prove to them a highly appreciated means of gaining more knowledge, and books will become and remain, what they ought to be, their friends for life. To teach the first grade in this manner is by no means easy work, and will require the most careful preparation on the part of the teachers. Some even might not be able at all to do it, but valuable help could be rendered to them by meetings like this one, where lectures on the subject might be given.

If the experiment should be made, and in European countries it is no more an experiment, the teachers in the upper grades would soon find a set of scholars with whom to work would be a pleasure; and those pupils would enter life better prepared for its duties. *American Ed. Journal.*

TWO WAYS OF TEACHING AT HOME.

ONE of the most perplexing hours of the day to the mother is when the children come to be "helped with their lessons." It is useless for her to acknowledge that she has not kept pace with her Geography and History, and has forgotten her Grammar and Arithmetic. She knows that she ought to have kept pace with them; that now and here the mother's duty calls her to work, and not to matters of frills, petticoats, or new hats. It is just as useless, too, for her to count the sums paid for the children's schooling, and declare that, after all, she is their teacher. There is no doubting that fact. As long as we pay to our teachers lower wages than to our skilled cooks and seamstresses, we cannot greatly blame them if they cram the children's heads with chaff of words, and leave us to give them the ideas. Then, as we may often have their work to do, how are we to do it?

There are two ways. Little Mrs. B., a veritable descendant of Gradgrind, drills the children every night in their next day's lessons. She keeps them at work until they can repeat *verbatim* Latin and definitions and Bible texts. She will not bate a jot, neither irregular inflection nor river in Africa. Their eyes ache, and their heads bob, and so do hers; but she holds them down to it as she would a knife to a grindstone. Phil., who is a dull fellow in ordinary matters, rattles off the words as if they were marbles dropping out of the mill; but that sharp little Bob is at the foot of his class. The words pass through his head like water through a sieve; he declares there is no sense in them. Mrs. B. prognosticates a miserable failure in life for Bob; he is the black sheep of the B— family and of the

school: whereas, the boy is simply lacking in the lowest kind of memory.

His cousins, the Dodd boys, do not rank very much above him. Their mother holds them back; will not let them be "promoted" or dragged through at high-pressure speed from class to class. "Fair and softly!" she says to the principal. "Let us lay the foundations first." The principal thinks Mrs. Dodd a nuisance. Meanwhile in the evening she "keeps shop" with the boys, or market, or bank, provides them with quantities of home-made money, makes them buy, sell, make change, compute accounts, reckon interest, draw checks. She does not call it play; they know it is work; you never can hide a pill by sugar from a boy. But it is pleasanter than meaningless rules. And by-and-by the signification of the thing flashes on them, the reality, precision, inflexibility of figures, and the modes of handling them.

When they are studying their Geography, their mother is usually reminded of some odd incident or story which happened in the country to which the lesson relates. It is a very live story; the people wear their native costume; they are busied with their peculiar work. You see the scenery, buildings, feel the climate, as she talks; the boys are with the Tartar on his plain, the lazzaroni in Naples, the "Polaris" drifting over the Arctic Sea. Perhaps they quite fail in naming the peaks of the Andes next day, or the capes on the Pacific coast; but they know a new country, it is not a patch of yellow on the map; they have talked with the people there, and they feel that the winds blowing on their faces come from it.

Mrs. Dodd contrived a queer occupation for the boys when they began English history. For Joe, who has a passion for drawing and daubing in paints, she provided a mammoth blank book, each enormous page labeled a century. On these Joe drew figures, giving his idea of the people, houses and state of civilization in that century. You may be sure that Druids and oaks; Boadicea, with her spear and yellow hair; wolves, Alfred and his burned cakes, filled up the first pages with magnificent blotches of color. We confess that his zeal slackened as he came down to civilized times; there were but two or three figures in a century, but their histories were as fixed in his head by his mother's repetition as those of Cinderella, or the great Jack himself. For Will, who had an odd skill in costume and dramatic effect, Mrs. Dodd contrived paper boxes with the name of the century in great gilt letters. There, by the help of little figures, the Black Prince played his past, and Richard was "himself again." Thir plan, with Mrs. Dodd's other plans, may seem trivial to our readers, as they did to the teacher. "Your facts are nails," she used to say, "iron nails; I only silver them over and drive them in."

Scribner's Monthly.

LOCAL GEOGRAPHY.

SOME METHODS OF TEACHING THIS SUBJECT.

BY SELDEN STURGES.

NO. 1. The teacher assigns the lesson, probably a half column of map questions for review. For instance, on the map of Africa, the cities, capes, lakes, rivers, and mountains are given for a lesson. No distinction is made. All must be learned alike—committed to memory. The pupil must be able to tell in what part of what country, and on which side of what river, each city or town is situated. All are of equal importance; Derr or Magadoro is just as important as Cairo or Tunis. They must also learn from what part of what country, into what water, and in what direction, each cape projects. Cape Lopez is equally as important as Cape Verd or Good Hope, and so on through the list. The situation and outlet of lakes must be given; the source, direction, and outlets of the rivers, and the exact situation of every mountain peak, or situation and direction of every range.

During the recitation the teacher sits at her desk with her book open before her, one index finger carefully keeping the place in the column of questions, the other industriously racing around over the map, like a hound hunting a lost track, trying to find the place, in order to be able to say "right" or "wrong" when it is located by the pupil. This gives the pupil a good chance to take a peep at a concealed book to refresh his memory. Thus the whole list is gone through with, in the exact order of the book—not one place omitted. The next lesson is assigned (probably the same one over again) and the class is dismissed, apparently as well satisfied with the performance as the teacher.

This method, of course, has its good points; but they are so exceedingly small that it may require the use of a magnifying glass of very great power to see where the benefit to the pupil comes in. It is a very *easy* way for the *teacher*, provided she be

not easily embarrassed by the long silence necessarily following some of the answers, before she can say "right" or "wrong." True, the *memory* is being cultivated and stored with *facts* (*!*) which may some time in the dim, distant future, be useful. But when?

No. 2 differs from No. 1 in that only the most important places are to be learned—the others being omitted or recited with the book before the pupil as well as the teacher. In neither of these methods is the outline map or a globe brought into requisition. The class usually manifests great interest—in trying to invent some side show to prevent old Morpheus from spreading his balmy wings over them.

No. 3. The teacher selects from the lists the places that are most important from a commercial or other standpoint; arouses the interest of the class by giving a short description of some city, or of a noted structure in some country—*e. g.* the pyramids of Egypt, or the ruins of Thebes, or the great Suez Canal—encourages then to learn from the Cyclopædia, Pronouncing Gazetteer, books of travel, or other sources, interesting descriptions of the people, products, animals, or places of the country—the origin of names etc., etc.; and the preparation of the lesson becomes a pleasure.

In the recitation the pupils are encouraged to tell what they have learned about the places mentioned in the lesson; one pupil is sent to the outline map, pointer in hand, to point out the places as they are mentioned; sometimes the teacher calls for the places, and sometimes she has the scholars call for them. One scholar may call on the one next to him to locate or describe some place, and that one in turn, after answering, may call on the next one in the same manner. This teacher strives to keep up the interest of the class by frequently varying her methods, and not using any one until it becomes monotonous.

No. 4 introduces map-drawing, and when she assigns the lesson, draws the map on the blackboard, taking the pupils on an imaginary voyage as she draws the outline, marking the principal gulfs, bays, capes and cities along the coast as she comes to them, stopping occasionally to throw in a lively description, to keep up the interest of the class, Occasionally she has the class draw the map on their slates as she draws it on the board. When she has completed her voyage around the coast, she takes them on a journey through the interior, locating the principal cities, rivers, mountains, and lakes, as she comes to them. Not more than fifteen or twenty places are required to be learned for one lesson, as she considers a little well done, better then a great deal poorly done. She has her pupils draw the map on their slates and bring to the class three or four times before finally putting it on paper, for which she offers a prize, or extra credits.

In the recitation three or four scholars are sent to the boards to draw the map, *without the book*, while the others recite the lesson, one being sent to the map to point out the places, as in No. 3.

A little time—five or six minutes—is always taken at the beginning of the recitation for a rapid review of previous lessons. This she considers very important in fixing the lessons in their minds. At the close of the recitation, and before assigning the next lesson, a few minutes are allowed for criticising the maps that have been drawn on the blackboard. Some of the best maps drawn on paper are used for ornamenting the room by tacking them up on the wall, or better, by putting them in rustic frames and hanging them up around the room.

Although each of these methods may have some good points, it is easy to see which is most profitable. *Pacific School Journal.*

TEACHING: REFLEX INFLUENCE.*

BY JAMES B. ANGELL.

EVERY man's vocation leaves its emphatic and permanent influence upon him. There is not one of us here to-night who is not a different man intellectually, morally, and even physically, from what he would have been if he had followed some other pursuit than that to which he has given his life. This is a fact, perhaps, not always sufficiently considered in choosing a profession. It is a duty to one's self that one should consider the probable effect of his pursuit upon his own character and development, because every pursuit affords advantageous and disadvantageous influences. The legal profession, for instance. Every lawyer of experience will admit that there is some danger of his becoming a special pleader. The duty of constantly saying all that can be said for his client, tempts him to lose something of that impartiality of mind which we consider be-

*Abstract of an address by James B. Angell, President of Michigan University, delivered before the State Teachers' Association.

longs to the highest type of man. On the other hand, from being called upon to advocate this side of a question to-day, and to-morrow that, the lawyer almost of necessity comes to have a certain breadth of view, and a power of looking all around a subject, which is one of the very highest intellectual gifts. A man who is unable to see more than one side of a question, is in danger of becoming a fanatic or a fool, and there is not much to choose between them.

The physician is thought by many to be driven by his practice to a certain dullness of sensibility to physical suffering, and to materialistic beliefs in philosophy. While it leads almost necessarily to a cultivated and truly scientific turn of mind, the practice of medicine gives many instances of self-denying devotion to the needs of the suffering poor. One of the most charming titles of the Lord and Master is that of "The Good Physician."

In the clerical profession there is a peril contrary to that of the legal. The minister, having no one to call him to account, is apt to fall into the habit of making sweeping and unguarded statements. Not that all ministers are lacking in caution. Sometimes the fear of this carries them to the other extreme; as in the case of a clergyman who was called upon to lead in prayer at the ordination of one of his pupils. While offering his petitions he was led to fall into the supplication that the Lord would make his servant to shine as a star of the first magnitude, but remembering the inferior intellectual capacity and attainments of his pupil, he asked that the Lord would make him "a star of *considerable* magnitude."

We need spend but a few moments with men of each of these professions to find out to which they belong. And so of every profession. Do what we will, go where we may, "our speech bewrayeth us," as did that of Simon Peter. We are living epistles, read and known of all men.

I will attempt to set forth some of the disadvantages and some of the advantages in our profession.

The first disadvantageous influence to which I refer, is the temptation to limit our development and attainments to the amount required for our every-day work. We are all naturally lazy. We do not like to do more work than is necessary to appear respectable. If we have but a single branch to teach, the danger is that we confine ourselves to that particular thing. If we have many, we may become dabblers in many things, and proficient in nothing. If I were selecting a teacher, I should not ask what are his present attainments, but has he a capacity or talent for *growth?*

Another danger is that of falling into ruts in our every-day life. We have to teach a thing over and over again, and we lose something of the freshness and elasticity of our early work. There are many people teaching who are not as good teachers as they were ten years ago: they have lost the zest of their earlier teaching, and nothing can compensate for that loss. As every day breaks upon us as a fresh creation from the hand of God, bringing new glory and brightness, so the every-day work in the school room should not be a monotonous repetition of the preceding one, but should bring with it new life; and it should be known that we have lain down and slept, and awaked with the stir of a new day in our blood, and that there is not a machine, but a living man or woman at the head of the school.

Another danger is that of being led to cherish an undue opinion of our own attainments or talents; this is what the outside world calls conceit. I have heard it said that there is more conceit in an ordinary gathering of teachers than in any other convention on the earth. I suppose that none of us are so vain as the distinguished Frenchman, who had so much respect for himself that he took off his hat every time he mentioned his own name, but I am compelled to believe that there are circumstances in the life of the teacher which expose him to this peril. The danger lies in the fact that the teacher is compelled all the time to work with persons of an inferior state of development to himself. He is tempted to become pedantic, and to astonish the audience before him. And when he goes out into the world and meets his peers, it is difficult to lay aside this habit.

There is another peril to which we are exposed; that of exaggerating the character of the profession. You will sometimes meet nice, prim, "goody-goody" people, of very solemn style. These people, in our profession, seem to be advertising their wares, as a barber with his nicely perfumed and and powdered hair announces his calling. They display themselves in a very nice use of language. Some teachers are so painfully grammatical that you can almost hear the creaking of a grammar machine in them. They seem to be trembling for fear they will say "don't" for "do not," and "tisn't" for "it is not." The conversa-

tion of such people is about as graceful as the gait of a man with a wooden leg. I once knew a teacher of elocution who was compelled to pay strict attention to his articulation. He said he got so tired of it that he allowed himself two days out of every week for a grammatical spree. I commend that mode of resting.

Another peril. We are in danger of becoming despondent about the children committed to our care, education in general, and all our work. We all know despondency is pernicious, and we ought not to give way to it. Out of these groups of boys and girls will come beautiful lives of which you will one day be proud, because you have had some hand in shaping them. Boys and girls are as good to-day as when you and I were boys and girls.

There is also danger that we become recluses in life. We are necessarily secluded in our life, but we must remember that we are to keep ever fresh our sympathies with the breezy, bright life of childhood itself, and all the bright, active life going on in the outside world. Our teaching will otherwise become dull and lifeless.

But we are not to shun a profession on account of its disadvantages. If we do we will be shifting all our lives. You never saw a man come to anything who blindly abandoned a profession on that account.

Our profession has great advantages. First, the advantage of furnishing constant and high stimulus to development on our part. The material on which we work is the chosen handiwork of God's creation, given to us in its most plastic state. Not Raphael, not Michael Angelo, with his pure material from which he realized such forms of beauty, had such material as you have.

The girl who is teaching a child to stumble over the a-b-abs is holding a ladder on which the child may climb to infinite heights of learning and wisdom. The noblest thoughts of the best minds are spread about us for you and me to use. No learning we can accumulate will be superfluous. The teacher who has the most learning is the best teacher. Opportunities present themselves from time to time, where we can use all we can ever hope to obtain. Whatever we may accumulate of learning or wisdom, may all at last drop its radiance upon these children about us, as the dews of night fall upon and fertilize the flowers of June.

Another advantage of our calling is that it stimulates us to find variety and novelty of methods, and so enlarge our development. Some express sympathy because our work is monotonous. They do not understand that we have great variety in the pupils themselves. The teacher should seek to adapt his instruction to the varied tastes and temperaments before him. The great danger lies in the fact that we are apt to handle all pupils alike. God has made these children different. If he had wanted them all alike, he would have made them so. It is our business never to forget this difference in constitution and make.

A student in college, who had never been successful in satisfying the professors with his work, had a great gift with his pencil, and spent most of his time in illustrating the college catalogue. He made an excellent caricature of one of the professors. The professor sent for him. The young man supposed he was going to meet his doom; but the professor proved to be a sensible one. Instead of reporting him to the faculty, he said to the young man, "You seem to have a gift for art; it does not appear that in the college course you have a gift for anything else. Do not waste your time in college, but go to Europe and study art." The young man took his advice, and became a successful artist.

I have spoken of the danger of an undue estimate of our calling. Any well-balanced teacher must learn modesty. One who is compelled to see how short time is for all his opportunities, must learn to put a just estimate upon it. How the simplest question of our youngest pupils often sounds the shallow depths of our knowledge. The longer a man teaches, the more he regrets that he is not equal to the opportunities God has placed within his reach. I think it is, as a general rule, only the inexperienced teacher who is confident of the infallibility of his methods of teaching; the true teacher, who has taught long enough to acquire a just confidence, yet a just modesty with regard to his shortcomings, is the one who is learning day by day, and enlarging for his work. When the day comes that the teacher is done learning, that is the day when he ought to stop teaching. One motto we ought to have is that of a learned German professor, "I grow old, always learning."

Another advantage of our calling is, that it strengthens some of the most charming virtues of our character. For instance, a wise patience. I mean that which waits for results, which looks beyond temporary disappointment to a fruitage of twenty, fifty, or a hundred fold, sure to come at last. We who are constantly in contact with the

'young, winning their sympathies at their tenderest and loveliest state, are constantly keeping the fountains of our own sympathy welling and overflowing. I call this one of the greatest blessings of our calling. I think it helps to keep us young. I have seen many aged teachers, but hardly ever an old one. I have seen the memories of childhood dancing in their eyes, and the music of childhood ringing in their hearts. This is the teacher's great reward. To be constantly associated with youth is the true elixir of life, the true fountain of youth.

FITNESS OF DIRECTORS.

BY THOMAS RAFFERY.

OF the external management of schools, or of that government exercised by trustees and boards of education, much might be said. Where such officers are selected with care, and with a proper regard for their educational qualifications, their supervision is found to be of the most salutary kind. The schools prosper under their hands. The entire community is benefited. But unfortunately this is not always the case. The same machinery and intrigue that are resorted to in municipal and other political elections are often made use of in theirs. Members are chosen not for especial fitness, nor for acknowledged scholarship, nor for broad and liberal views of education, but from far different motives. One is chosen because he is a smart lawyer; another because he is an energetic business man; a third because he is a gentleman of means and leisure; and several others for no particular reason at all but because they happen to be popular, and their friends want to give them office.

And it is frequently to such men, *ex officio*, that the direction of the great educational interest of the rising generation is committed. The evils that result are bad enough when such boards are composed of three or four members, but when they are increased to ten or a dozen—to that cumbersome machinery which would in fact be sufficient to run a State—the shock to educational interests is almost fatal.

Of these evils we will enumerate only three; namely, 1. That the best interests of education are not left free and untrammeled, but are borne down and opposed by a host of outside influences that otherwise could not act. 2. That the real interests are lost sight of in the multitude of trivial matters that are brought forward and discussed. 3. Perhaps the most important of all, is the direct tendency it has to degrade the teacher, and consequently education itself.

Where can we find a dozen men in any community who will be united on any question? They are human. They have their likes and dislikes; their whims and their fancies; their ideas and their antagonisms; and if there is any one subject more than another that they are ready to discuss and to differ upon, that subject is education. They are business men, professional men, political men. They have their friends, relations, clients, neighbors; obligations to repay and friendships to discharge, favors to ask and wires to pull. Are we to understand that none of these things enter into the influencing or governing motives, or in any manner touch the mainsprings of action of such a board of education? Can the pure stream of manly, disinterested action in behalf of the true interests of education flow through such channels and not be obstructed? Does it not rather, like the rivers that flow through the deserts, often wholly disappear and become entirely swallowed up by these all-absorbing sands?

No greater evil can be done to a community than to degrade the office of the teacher. Anything tending in that direction helps to sap the foundations of the state, and serves to undermine the dykes that shut out the waters of an ocean of ills. In all enlightened ages, and in all civilized nations, where the people proved to be possessed of honor, integrity, and politeness, the instructor was held in high esteem. By some the office of the educator was placed even above that of the statesman, for the reason, it was said, that one works with coarse instruments for coarse ends, and the other by the most refined influence acting on that delicate ethereal essence, the immortal soul.

One great writer speaks of it in the following manner: "There is no higher office than that of a teacher of youth, for there is nothing on earth so precious as the mind, the soul, and the character of the child. No office should be regarded with greater respect. The first minds of the community should be encouraged to assume it. We know not how society could be aided more than by the formation of a body of wise and efficient educators. We know not any class which would contribute so much to the stability of the state and to domestic happiness."

Is all this taken into account by boards of

education? Is the teacher honored? On the contrary, he is too often given to understand that he is a hireling; that he is "only a paid servant of the board of education;" that if he gives satisfaction he will be allowed to earn his "wages" like any day-laborer or working-girl. It is not even disguised from him that his official life depends upon the the satisfaction he gives the board,—that is, he is too often dependent upon the whims, fancies, or prejudices of men who do not have at heart simply the best good of the schools.

Teachers, let no man deprive you of your independence! In giving up this you give up all. It is an inheritance of which no man should rob you. It is the soul of all your success in teaching. When Artaxerxes sent for the arms of the Greeks after the battle of Cunaxa, they made answer that they were possessed of no good thing except their arms and their valor, and that by preserving their arms they could make better use of their valor. So we teachers can say, that we are only possessed of our independence and our education. Let us preserve our independence, then, that we may be enabled to make proper use of our education.

N. E. Journal of Education.

WHAT SOME OF YOUR PUPILS PROBABLY CANNOT DO.

THOSE in the Second Reader cannot write the words of their spelling lesson, nor copy any of their reading lesson from the reader.

They cannot write all the numbers to 1000.

They know nothing of the Roman characters.

They cannot tell the points of the compass.

They cannot tell what time it is by a clock.

They cannot name the days of the week and the months of the year in order.

They cannot tell the name of the country, state, county and township in which they live.

Those in the Third Reader cannot all bound the township, county, state, and country in which they live.

They cannot tell how the waters in the neighborhood streams reach the ocean.

They cannot tell the name of the county seat, or capital, nor the state capital, nor what is meant by a capital city.

They do not know the multiplication table; that is, they cannot answer promiscuous questions upon it.

They cannot give a definition of an object which they have seen by describing it as it appears to their eyes, but will try to remember the words of a book, or repeat, parrot-like, what you have told them.

They cannot readily work Long Division.

They cannot write numbers to millions.

They cannot write legibly.

Those in the Fourth Reader may possibly fail in some of the points above-mentioned. Test them individually upon every point.

Those in the Fifth Reader cannot read intelligently anything from a newspaper.

They cannot write a letter without incorrectly using or omitting capitals and punctuation marks.

They cannot tell the number of states in the Union.

They cannot name all the states and capitals.

They cannot name the 13 original states.

They cannot tell why the Fourth of July is celebrated.

They cannot write decimals.

They cannot divide decimals and point off correctly.

They cannot make out a bill, or a note, or receipt.

They cannot write a list of the days of the week, and of the months of the year with the number of days in each, and of the states, with their capitals, and spell all the names correctly.

It is barely possible that one or two of the class cannot do what those in the Third Reader ought to do. It will do no harm to try them.

There are other things that pupils cannot do, of which we may speak hereafter,

A REMINISCENCE.

SCHOOL-MEN of the present day can hardly realize the difference between Now and Then. When the first county superintendents went into commission, not a few of them discovered that they would have to teach their teachers something, before they could be examined. Let me give one illustration, out of many that could be furnished. Not only new applicants, but very many teachers already in the field, knew nothing of mental arithmetic, even in theory. They did not believe in it, cared nothing for it, and rebelled against examinations that involved anything more than the old-fashioned methods of "ciphering," with slate and pencil. So stubborn and tenacious was this hostility, that it became necessary to confront it, at examinations, with the authority of the Department, in standing official form.

As the most convenient and effectual method of reaching the desired result, Arithmetic was thereafter divided, in the Provisional Certificate, into "Mental" and "Written," to compel proper attention to mental exercises in that elementary branch of study. This was the only reason for issuing the temporary certificates in that form.

It should, perhaps, be added here, that the school law of 1854 did not contemplate provisional certificates at all, although they were not prohibited in express terms. They had to be issued, however, or leave most of the schools without teachers. It was a tem-

porary expedient, and it was supposed that in a few years, at furthest, they could be dispensed with altogether. Time has proved that hope to be illusory.

Inter nos, the true remedy for incompetent teachers is very simple; to wit: 1. A ten-months school-term in all the districts. 2. An adequate salary. 3. Permanent employment; and 4. The exclusion, by official authority, of unqualified teachers. With these few pre-requisites secured, there would be no trouble whatever in getting a full supply of well-qualified, ambitious, and devoted teachers. The theory is sound, and we must come to it yet. Who of us will live to see it realized in practice? H. C. H.

EDITORIAL DEPARTMENT.

THE SCHOOL JOURNAL.

LANCASTER, NOVEMBER, 1882.

E. E. HIGBEE. - - - - J. P. McCASKEY.

WE find in full in the *Denver Republican* the article on "Pennsylvania Out West," which appeared in the last number of this journal. It will secure for the old "Keystone" a fair hearing in Colorado.

THE recent death of County Supt. D. H. E. La Ross, at his home in Hummelstown, Dauphin county, was most unexpected. We had received a letter from him but a short time before seeing the sad announcement in the newspapers. An obituary notice which was sent for *The Journal* at our request has failed to reach us through the mails, and will appear in our next issue. Mr. La Ross had been Superintendent of Dauphin county for so many years that he seemed to have a life-tenure of the office—which indeed he had, for he died in the work.

THE Secretary of the English Old Testament Revision Company states that it will not be completed this year, nor will the Revised Version of the whole Bible be published in the year 1883.

A RECENTLY published census return furnishes a bi-centennial item of interest. The number of native Pennsylvanians living in the United States in 1880 was 4,184,180. This is equal to the whole foreign-born population of the United States, excluding the natives of Great Britain and Ireland.

THE colored cadet from Florida, Lemuel W. Livingston, who failed to pass the preliminary examination at West Point, is now principal of the academy at Gainesville, Florida. He has probably had enough of military life.

IT is pleasant to note the appreciaion with which our leading Pennsylvania teachers and superintendents are regarded in the great West. The latest instance of this that has come under our notice is the tender of the superintendency of the Omaha schools, Nebraska, to Supt. R. K. Buehrle, of Lancaster, at the generous salary of $3,000 per year.

IT is said that the great telescope in the Observatory at Washington, now the finest in the world, through which the very small moons of Mars were discovered, reveals no less than 56,000,000 stars. With increased telescopic power, other millions upon millions will doubtless be brought under the range of human vision. Each star being, of course, self-luminous, is in all probability a sun, having a retinue of planets revolving about it. Many of these suns are known to be very much larger than our own; it is not unlikely, therefore, that the number of their planets is in many cases greater than in our own system. Since God wastes nothing, such of these planets as are fitted for habitation by intelligent beings, must be inhabited! No deduction in mathematics seems more rational or more conclusive. If it be correct, what fullness of meaning do we recognize in those words of the Master—"In my Father's house are many mansions?" Put thoughts like these to your pupils, for "out of them are the issues of life."

THE long-looked-for transit of Venus across the sun's disk, will take place December 6th. The leading nations of the world will have parties of observation so distributed to various posts of observation, as to secure very many reliable angles for subsequent calculation in determining, more accurately than ever before, the problem of the sun's distance. It will be well for readers of *The Journal* who are at all interested in the grand movements of the heavenly bodies, to be on the watch for this un-

usual event. Through smoked glass, a "small black marble" whose actual diameter is nearly 8000 miles, will be seen slowly passing across the sun's disk, and Pennsylvania will be as good a field for observation as can be found elsewhere. As there will be no recurrence of the transit during the next century (until A. D. 2004), those wishing to see this phenomenon cannot afford to miss the present opportunity. Of all the teeming millons of the earth to-day, not one human being will then be alive, though many millions more than now will, no doubt, discuss and be deeply interested in the transit of that distant era.

We seldom see any effort put forth, purely unselfish, and having for its object the benefit of others—it may be their moral and spiritual well-being, or merely the supply of their physical need—that it does not recall a touching incident from the "Heart of Mid-Lothian," where Sir Walter Scott describes the interview between Jeanie Deans and Queen Caroline. Jeanie has come all the long way from Scotland to make a personal appeal to the Queen, to secure her good offices in a last and almost hopeless effort to save the life of her condemned sister. Sir Walter describes her voice as "low and sweetly toned, an admirable thing in woman." Her warm heart is in it, all the while apprehensive of failure, and it is tremulous with unshed tears as she closes her appeal in these words of simple and solemn pathos: "But when the hour of trouble comes—and seldom may it visit your ladyship—and when the hour of death comes that comes to high and low—lang and late may it be yours, my lady?—then it is not what we have done for ourselves, but what we have done for others, that we think on most pleasantly."

Professor Sophocles, one of the oldest members of the Harvard faculty, bears the truly classical name of Evangelanus Apostolides Sophocles, and is now 75 years of age, having been connected with the University since 1845, when he was first appointed Greek tutor. His Greek dictionary and his text-books of ancient and modern Greek have made his name well known in the New World and Old, and have been of great service to scholars in every country, as well as to those at Cambridge. He is, like many great men, absolutely simple in his tastes, and has for some time lived a retired life, out of reach of society, devoted to his pets, of which he has many. He has a number of hens and chickens, of which he is extremely fond, and which he names after his friends as a means of keeping them constantly in his thoughts. He is very kind and devoted to his animal friends.

In the Philadelphia *Ledger* of recent date a correspondent makes the following suggestion as to the celebration next in order:

Our city having conducted so successfully both a Centennial and a Bi-Centennial, it is doubtless well prepared for a continuance of the good work. Common sense, however, would suggest the restriction of such celebrations to great occasions only, though the result be a break in the regularity of nomenclature. We may not have a Tri-Centennial, but the chance for a great Quadri-Centennial should not be allowed to slip. Why not call upon all American nations to help us do honor to Christopher Columbus in 1892? The four hundredth anniversary of the discovery of the New World should have at least ten years of preparation.

A School Director makes the following suggestions in reference to the management of District Institutes:

They should be compulsory, and the time employed in attendance should be extra time, so paid for, and not be taken from the school month. Teachers absent without reasonable cause should lose a day in the school month for each day of non-attendance, that is, lose the amount they would earn by attending institute, and forfeit one day's wages on the school month—this to cause full attendance. The law should prescribe the days of holding the institute—these to be at least one each month, though two days would be better. The State Department should arrange the general programme for the institutes, which should be sent to the Secretary of each School Board, leaving a blank for discussions of a local nature—the papers presented to be the property of the Board of each district, for their use in hiring teachers, and those regular in attendance at District Institutes to have the preference in securing employment. These ideas put into force would raise the status of our teachers' profession, and greatly increase the efficiency of District Institutes.

We have received from Supt. W. R. Baker, of Huntington county, a plan for a country school-house, which seems to meet all the prominent requirements of such a building. The principles and plan have been adopted largely from the Circular of Information from the Bureau of Education, No. 4; but in their application Mr. Baker has made some important changes and additions, as for instance, the wardrobe, change of position of the out-houses, introduction of two heaters, and the roof arrangements, as shown in the front elevation.

He recommends heating with two stoves of moderate size, for the reason that a better distribution of heat may thus be had at moderate cost. Base-burning heaters, or furnaces, may, however, be used by digging the cellar to a sufficient depth, and making a trap-door from the hall entrance to the fuel room.

We have been much pleased with the entire plan; but, distrusting our own judgment in a matter of so much importance, have submitted it to a superintendent who is an expert in the building of school-houses. He reports as follows: "I have examined the plans and specifications submitted to me by you, and regard them as very excellent. They leave scarcely anything to be desired." Supt. Baker has supplied a copy of the plan, etc., to the school boards of his county, and is having inquiry for it from abroad.

It is not generally known that the laws against defacing walls and buildings, passed at the last session of the Legislature, are very severe against offenders. It is a habit that boys have, which although it may be thoughtless, renders them liable to punishment; and parents and teachers should not forget to keep the young people fully advised of the fact. It is well for parents to remember that any misdemeanor of their children in this respect makes them liable also. The teachers of the public schools, especially, will do well to instruct pupils in regard to this law.

It is estimated that not less than a million persons visited Philadelphia during the four days of the late Bi-Centennial celebration. The crowd was much greater than the city can provide for comfortably, but general good nature and good order prevailed everywhere.

The display of shipping on the Delaware on Tuesday naval officers pronounce the finest ever seen in American waters; the Labor parade of Wednesday, which was five hours in passing a given point, surpassed anything of its kind ever before attempted in this country, or perhaps in the world; while the Masonic parade of Thursday and that of the military organizations and the Grand Army of the Republic on Friday, were such as are seldom seen anywhere. The pageant of Wednesday evening, for which large promises had been made, was unsatisfactory, a part of it being ridiculous in such connection; and the display of fireworks, in itself very beautiful, resulted in disaster.

The great mistake, it has seemed to us, was made in not securing the Main Building a year ago, and there organizing a proper representation of the manufacturing, agricultural, educational, and other interests of Pennsylvania, such as would have drawn tens of thousands of people from all parts of the United States, from Canada, and even from Europe, to witness it; and from which they would have returned home impressed and inspired by the greatness of the State of William Penn. This exhibition should have been kept open during the entire month of October, or longer, with such street and other displays—side features of the celebration—at intervals, as might have seemed desirable. Such a "Bi-Centennial" could have been visited with comfort, and its vast and varied exhibit inspected at leisure. It would have been remembered for a life-time as second only to the great Centennial Exposition of 1876. Philadelphia and Pennsylvania could have done this, and should have done this. But neither city nor state rose to the level of the great occasion.

MODERN METHODS OF EDUCATION.—I.

While intellectual culture most certainly affects any given age, it is itself in turn, both in its methods and scope, conditioned by the same. The influence here is reciprocal; and those interested in educational work are constrained, on this account, to take into consideration not only the possibilities of mental development theoretically viewed, but also what characterizes the spirit of the age and people; for this is sure to make manifest its needs, and press its claims upon the earnest attention of all who are engaged in educational work.

In a barbarous age, for example, but few needs of intellectual culture manifest themselves. No claims in the way of mental discipline are pressed upon the attention of the mass. No doubt the capabilities of mind are there; but there is neither inward nor outward stimulant present to draw them into exercise.

We find that the North American Indians were cunning and skillful so far as the range of their wants extended; and there were diverse grades of excellence among them in all that characterized their surrounding life. Some were heroic in the fight and eloquent at the council, and some possessed wide organizing and administrative power. So was it with our own Teutonic forefathers. They

roamed the forests and marshes of interior Europe, bold and fearless, and confronted Roman civilization and Roman encroachments upon their liberty with such persistent resistance that Tacitus declared, they might be *beaten*, but never *conquered*. Tney had, however, no literature, no cities, no civilization or culture. Undeveloped mind was there—a slumbering national genius, which, when awakened, gave to the world its highest form of civilization. "Their rude Northern Sagas express the deep religious feeling of the old Teutonic soul, and flash upon us from the darkness of the Northern night many gleams of auroral light and splendor" (Park Godwin). But it required the lapse of ages before all this came to any proper utterance.

Even in the civilization of the Roman world we find the range of educational pursuit very narrow, and correlated on every side to the needs and claims of the age. Law and oratory, which their wide empire and world-embracing legislation demanded, were carefully fostered. Poetry and the arts in general, under the stimulant of the preceding and neighboring Greek culture, were cultivated. Mathematics engaged attention, so far as the immediate wants of the time demanded. Beyond this very little challenges our regard. The whole range of physical science hardly came into view at all. There was at times careful attention paid to agriculture. The Roman Senate, to foster this study, ordered the works of the Carthaginian Mago to be translated; and succeeding the wars of the Triumvirate, in the peaceful times of Augustus, we all remember the beautiful panegyric of Virgil in the Georgics; but from the same we can easily see how little compass of science there was. Chemistry, and botany, and mineralogy, and geology, were almost unknown—entirely undeveloped—and indeed came not into the horizon of the studies of that age. The capabilities of mind for such investigations were there, but there was no outward demand to bring them into exercise and development in such direction.

In the medieval period, after the overthrow of Roman civilization, the range of studies was of necessity very narrow. The Teutonic world was in ferment and agitation, and the whole interest of education was left in the hands of the monastic institutions, which still preserved the precious remnants of the old civilization. Here the skins of animals were wrought into parchment, and in the Scriptorium of each monastery, the choicest parts of Roman literature were copied and studied. The rude monastic almanacs or chronicles became the germs of modern historical investigations. Marshes were drained, and orchards and gardens cultivated by the laboring neophytes, and the rude material thus gained constructed into rude fabrics by the patient monks. What the church demanded in the way of art-culture, as in music, architecture and poetry, was met, but the almost infinite range of modern investigation was unknown.

When the vast genius of Karl the Great sought to organize the Teutonic world and give to its capacities room for proper development, schools were established at every cathedral church and in every monastery, and in his own court, and the most learned men from every quarter were seized upon to aid the work. Yet under his vigorous administration and impulse, the range of studies did not go beyond the so-called *trivium* and *quadrivium*, the first embracing *Grammar*, *Rhetoric*, and *Logic*, and the second, *Arithmetic*, *Music*, *Geometry*, and *Astronomy*.

Even in the most flourishing period of medieval culture, when, under the influence of Greek writings introduced chiefly through the Arabs, the famous pentarchy of scholasticism reigned, it was possible for a single mind so far to exhaust the whole range of studies, as to secure the title *doctor universalis*, which was unhesitatingly given to Albertus Magnus.

How vain such a title now! No one for a moment can indulge the thought of gathering up even the most fragmentary details of the boundless investigations of the present century. Myriad harvesters in myriad fields of inquiry are at work, and their gathered sheaves lie round us "thick as autumnal leaves that strew the brooks of Vallombrosa."

In view of this more than Briarean demand of the age, what must be our method of education? We certainly cannot shut our eyes to what is around us. We cannot confine overselves, if we would, to the narrow limits of a semi-barbarous age, simply learning to read and write and cypher. Nor can we attempt any curriculum that shall grasp the wide expanse of studies which the age demands. Such an attempt would be even more foolish than the other. What shall we do? What should characterize the methods of modern education? We hope to answer, as best we can, in a subsequent article.

OUTCOME OF THE SYSTEM.

MOST VALUABLE RESULTS OF THE AMERICAN COMMON SCHOOLS.

THE articles which follow, upon "Reverence for Invisible Law," and "An Efficient Aid to the Family," were written respectively by A. A. Miner, president of Tufts College, Massachusetts, and a member of the Massachusetts Board of Education, and Dr. Paul A. Chadbourne, ex-president of Williams College, and president of the Massachusetts Agricultural College. They are in answer to the question from the *N. E. Journal of Education*, "What do you regard the most valuable result attained by our Common School System?—and present such results as must be approved by good men everywhere. It is true, that valid reasons why the system should be retained, are no longer needed for its retention, it having long since made good its "reason for being," so that it cannot now be displaced or overthrown. But it is none the less gratifying to see strong men labor to strengthen still more its sure defences in the minds of the people—two of which are here discussed:

REVERENCE FOR INVISIBLE LAW.

In answer to your question, "What do you regard as the most valuable result of the American common school?" I fear I can give but an unsatisfactory reply. Ordinarily the attainment of the result directly aimed at is supposed to be not only a justification of the effort, but the highest and fullest justification. This would probably be true if there were not numerous undesigned results springing out of the complexity of human relationship and efforts, attributable to incidental forces far outweighing the efforts upon which they act. Because of this fact men often "build better than they know."

Our capitalists construct railways from the seaboard across the country into the great Northwest. Their aim is gain,—partly on the investment, and partly on the increased value of the distant regions opened thereby to cultivation. An incidental result far more important than the one directly intended, is the furnishing of beef and bread to the people of the Old World, thus enlarging greatly our foreign commerce, adding immensely to the wealth of the Nation, and stimulating every branch of home industry.

Our Revolutionary fathers raised large armies, suffered indescribable privations, and established free institutions upon American soil. But far beyond their highest thought, we now see the prophecy of the most powerful nation upon which the sun ever shone. God grant that it may prove the most wise and most just. God grant that the whole people may remember that "righteousness alone is strength."

Your question implies, and justly I think, that something like this may be true in reference to our public schools. The ostensible aim is the acquisition of the elements of an education. Speaking broadly of the whole country, and of our youth in all the walks of life, this end is but indifferently attained. It is true, the meagre acquisition thus secured makes possible far higher progress in after-life.

But at the same time other results are gained. Pupils in a wisely-governed school soon learn that there is a law in the very nature of things. The direct purpose for which the school exists, requires that some things shall be, and others shall not be. There are mutual rights and duties, personal and general claims, favorable and unfavorable surroundings, all of which must be kept in subordination to the special purpose of the school. There is a time to begin and a time to close, a time for study and a time for recitation, a time to speak and a time to be silent. In short, out of the very make-up and surroundings of the school there springs an invisible but imperative law which every pupil must regard. It is *one* law, infinitely flexible, indefinitely modified in application, but binding the thought, the purpose, the very conscience, to an invisible throne.

Obedience may be difficult, disagreeable, burdensome; but it must not be refused, nor willfully delayed. It may be wearying to the flesh because of the uncomfortableness of the furniture, or the protractedness of the sitting. It may be wearying to the spirit because of the unattractiveness and severity of the problems in hand, or the mental strain required in their solution. The pupil may be dealing with abstract relations difficult to be grasped. Through the vagueness of his perceptions he may toil upon false premises and fail again and again in his results. But every failure narrows the margin of uncertainty and hastens the hour of success. Wrestling thus with principles, he learns to respect the invisible. He grows to have more faith in God than in granite, in righteousness than in riches, in self-denial than in self-indulgence. A mountain, he learns, can be tunneled; a principle, never.

Thus in the school order and school studies he learns that the visible is ruled by the invisible. He becomes a law unto himself. Coasting upon the hillside on a fine winter's morning, at the sound of the bell he hastes away to what, to the average lad, is solitary confinement in a veritable prison-house, where he is shut up to the "hard task" of mental sustenance. He goes willingly. He is inured to self-denial. He can put aside ease for a great duty, or a great service. His country calls; he promptly obeys. Such is the very stuff heroes are made of. Many thousands of them linger among us to-day. Self-denial, self-control, reverence for invisible, indwelling law,—is not this the "most valuable result of the American common school"?

AN EFFICIENT AID TO THE FAMILY.

The most valuable result at which the common school can aim is to supplement the family

in preparing its children to become worthy American citizens. Intelligence, obedience to properly-constituted authority, and respect for the rights of all, are essential qualities in the citizens of a State that is to secure freedom and furnish its own rulers by the choice of the people. That the common school has done a great work in preparing the American citizen for his duties, is acknowledged by all; but the measure of its success has, for various reasons, been unsatisfactory. The family, properly constituted, is not only the unit of the State, but it is the only true nursery of men and women. No other institntion can fully take its place, and where other agencies are called to aid in its work they can only aid, and can never successfully become a substitute. But in some families the work of instruction and government which properly belongs to them is never done, so that the school, so far from supplementing the work done there, has to become its substitute, and a corrector of evil influences and vicious habits. To make model citizens under such conditions is a work in which no institution can have complete success. Much of the apparent failure of the common school in its daily efforts and final results is beyond its control; the difficulty is, oftentimes, in the families from which the pupils come,—sometimes, indeed, from want of true apprehension of the purpose of the school by those having control. These defects, or rather obstacles, in the way of full success are likely to remain; and this unpleasant fact is to be taken into consideration in all plans of education for the future, as the past existence of evils must be allowed for in judging of the success of the common school up to the present time.

Since we believe that the chief aim of the common school has been the true one, we can only hope to secure better results from it in future by better methods of instruction and greater efficiency in the school itself, and by a fuller appreciation of its work and co-operation on the part of the parents whose labors for their own children it was intended to supplement. The education of children might be completed, indeed, in each American family, as is generally the case in each Icelandic. But parents are often not competent to teach in the most effective manner, and the demands of our family life leave them little time for the work. There soon comes a time, in the average American family, when parents feel they must have aid even in the primary instruction of their children; hence the district school-house and the calling of the teacher. The public interest involved in this education is of such importance that this public school has the law to support it, and, as a natural consequence, there are in some States laws making this primary education compulsory.

The common school so far has supplemented the best work done in families, by giving the children the advantage of teachers better trained for their peculiar duties than the parents of the children themselves. It has brought the children of the same neighborhood together in pleasant relations, demanding more care, forbearance, and regard for public order than any family can secure when dealing with the few children, brothers and sisters of the same household. It has also subjected to proper government and direction children whose training has been neglected at home. The common school, with all its acknowledged imperfections, has done a great work in fitting children to become worthy citizens, by imparting information, by enforcing obedience to proper authority, and by promoting a community of interests in neighborhoods. That the common school,—and by this term we here mean the primary, or rather the ungraded school,—can do much more than it has done, we firmly believe. But the nature of this work, its present defects, and its possible improvement, demand a separate discussion.

WHAT TO TEACH BOYS.

IT has been said by a philosopher that the true education for boys is to "teach them what they ought to know when they become men." What is it they ought to know?

First.—To be true—to be genuine. No education is worth anything that does not include this. A man had better not know how to read—he had better never learn a letter in the alphabet, and be true and genuine in intention, in action, rather than being learned in all sciences and all languages, to be at the same time false in heart, and counterfeit in life. Above all things teach the boy that truth is more than riches, more than culture, more than earthly power or position.

Second.—To be pure in thought, language, and life—pure in mind and body. An impure man, young or old, poisoning the society where he moves with smutty stories and impure examples, is a moral ulcer, a plague-spot, a leper, who ought to be treated as the lepers of old, who were banished from society, and compelled to cry "Unclean," as a warning to save others from the pestilence.

Third.—To be unselfish, to care for the feelings and comforts of others; to be polite, to be generous, noble, and manly. This will include a genuine reverence for the aged, and things sacred.

Fourth.—To be self-reliant and self-helpful, even from early childhood—to be industrious always, and self-supporting at the earliest proper age. Teach them that all honest work is honorable, and that an idle, sueless life of dependence is disgraceful.

When a boy has learned these four things, when he has made these ideas a part of his being—however young he may be, howevee poor, or however rich, he has learned somr of the most important things he ought to know when he becomes a man.

OFFICIAL DEPARTMENT.

TEACHERS' INSTITUTES.

THE following are the dates at which the sessions of the Institute will be held in the counties named:

Lancaster	Lancaster	Nov. 13.
Delaware	Media	Nov. 20.
Franklin	Chambersburg	Nov. 20.
Lebanon	Lebanon	Nov. 20.
Northampton	Easton	Nov. 20.
Mifflin	Lewistown	Nov. 27.
Clinton	Lock Haven	Nov. 28.
Adams	Gettysburg	Dec. 4.
Bedford	Bedford	Dec. 4.
Huntingdon	————	Dec. 4.
Lackawanna	Scranton	Dec. 4.
Clearfield	Clearfield	Dec. 11.
Juniata	Mifflintown	Dec. 11.
Bradford	Towanda	Dec. 18.
Cambria	Ebensburg	Dec. 18.
Carbon	Mauch Chunk	Dec. 18.
Dauphin	Harrisburg	Dec. 18.
Forest	Tionesta	Dec. 18.
Fulton	McConnellsburg	Dec. 18.
Luzerne	Wilkes-Barre	Dec. 18.
Lycoming	Muncy	Dec. 18.
Perry	New Bloomfield	Dec. 18.
Schuylkill	Pottsville	Dec. 18.
Union	Mifflinburg	Dec. 18.
Westmoreland	Greensburg	Dec. 18.
Armstrong	Kittanning	Dec. 25.
Butler	Butler	Dec. 25.
Centre	Bellefonte	Dec. 25.
Fayette	Uniontown	Dec. 25.
Jefferson	Brookville	Dec. 25.
Somerset	Somerset	Dec. 25.
Washington	Washington	Dec. 25.
Wyoming	Tunkhannock	Dec. 25.
Clarion	Clarion	Dec. 26.
Snyder	Middleburg	Dec. 26.
Columbia	Bloomsburg	Jan. 1, '83.
Monroe	Stroudsburg	Jan. 1, '83.
Montour	Danville	Jan. 1, '83.
Wayne	Honesdale	Jan. 1, '83.
Pike	Milford	Jan. 2, '83.

ITEMS FROM REPORTS.

ARMSTRONG.—Supt. Stockdill: Our schools are now all supplied with teachers. I think we never had a better corps of teachers. The directors were very particular this fall in selecting them, and, after all our own good teachers had been supplied with schools, sent to neighboring counties for a sufficient number to fill up the vacancies. In one township, where they paid $25 per month last year, they now pay $32; in one borough they now pay $40 instead of $32 last year. Gilpin, Sugar Creek, Cowanshannock, and South Bend, are building good houses this fall. The good work is moving onward.

BEDFORD.—Supt. Cessna: New school houses have been built in a number of districts; those in South Woodbury, Coleraine, and West St. Clair, are intended for graded schools. More directors have subscribed for the *Pennsylvania School Journal* this year than for several years past. This owing to the fact that the Superintendent brought the matter before them. Many directors do not know that they have the privilege of doing this at the expense of the district.

BERKS.—Supt. Keck: I am sorry to state that Heidelberg has reduced its school term from six to five months. We should move in the other direction. On the 11th of November, shade trees will be planted around every public school-house in the county. The schools visited during the month are full and doing well. The teachers are working faithfully.

BUCKS.—Supt. Woodruff: The directors of Falls district have improved the school-house at Tullytown, by painting it and putting a porch in front. They have also furnished the Penn's Manor school-house with new desks. The Bensalem directors have enlarged, refitted, and refurnished the Cornwells school-house. In point of completeness of houses and grounds, Bensalem may take rank as the Banner rural district in Bucks county; Weightown, Newtown, and other districts are following only a little behind. Wages have been advanced, but we are still behind adjoining counties. The result is that we are constantly educating teachers for our neighbors. As soon as teachers have gained experience and attain a reputation, they leave us for more remunerative positions.

BUTLER.—Supt. Murtland: The directors of Franklin district have procured new furniture for all their houses. Appleton's Primary Reading Charts have been placed in the Butler schools, the Bank of Knowledge in Fairview district, and Dictionaries and Cyclopedias in some of the Western districts, by J. B. Morrow, principal of Centreville schools. A great many of our schools will be taught by beginners, as many of the old teachers have left the field.

CAMBRIA.—Supt. Strayer: Two hundred and forty-three applicants were examined this year, of whom forty did not receive certificates. With those holding professional or permanent certificates or Normal School diplomas, the schools will be filled for the term. The examinations were well attended; 187 directors were present, and a large number of citizens. The Normal Institute held in Ebensburg by Chas. A. Riddle and the county Superintendent, assisted by Prof. J. S. Taylor, of New York, was well attended. The majority of those who attended school during the summer passed a better examination than last year. Some of our old teachers are falling out of the ranks, giving place to young men and women who possess energy and enthusiasm in their work. Wages have been increased in a number of districts, yet we have teachers holding good certificates who will not engage in teaching for the salaries paid. Most of the country schools opened about the middle of October. New houses are being built in Clearfield, Millville, Reade, and Lower Yoder districts. Cambria borough, Chest Springs borough, Cambria, Stony Creek, and White townships, are making needed improvements in school furniture. Home-made furniture has had its day in Cambria, all our houses now being supplied with good patent furniture.

CARBON.—Supt. Balliet: The select school at Centre Square closed September 29th. It was in session two terms, and was attended by a number of our teachers and young men who are preparing for College. The school has done a great deal in the community, and deserves to be better patronized than it is. Lower Towamensing district has raised the salaries; but not enough to secure good teachers for all the schools. The district could easily afford to pay $35 or $40 per month. Good teachers cannot be gotten for less, except in rare cases. The School

Board of Mauch Chunk have decided to put up a new building in the first ward. Several rooms in the present building are entirely unfit for use. Their dampness and poor ventilation and means of lighting endanger the health of teachers and scholars. Mr. J. P. Rowland, principal of the Weatherly schools for several years, has resigned his position, and W. A. Rauch, a graduate of the Franklin and Marshall College, is elected to succeed him. Salaries are rising in many of our districts. Franklin district paid only $27 last year, whereas this year the salary will be $35. The directors all over the county have been careful in appointing as good teachers as was possible. The school board at Weatherly, at the suggestion of the county Superintendent, adopted the plan, a year ago, of putting their best lady teachers into the primary schools and paying them higher salaries than the less experienced and less skillful teachers, whom they appointed to the intermediate grades. They are pleased with the results, and will this year pay the primary teachers $11 more per month than several of the teachers in the intermediate grades. The school board of Mauch Chunk intend to put up a new building in the first ward. The directors of Lower Towamensing also propose to put up a building with two rooms at Millport. These buildings are very much needed.

CLARION.—Supt. Davis: On the night of September 11th, the Court House was burned. I was absent on an examination tour, and all the contents of my office, on the second floor of the Court House, were consumed. The loss included a fine text-book library, a set of metric apparatus, including two fine charts, weights and measures of capacity and length, outline maps, school apparatus, a fine book-case, about 300 bound Superintendent's Reports, records, all the bound and loose manuscript work done by the schools and accumulated during the past five years, mineralogical and botanical collections, etc., etc. Altogether this is a sore and in some respects an irreparable loss to the educational interests of Clarion county.

CLEARFIELD. — Supt. McQuown: Seventy-five per cent. of all the teachers examined at our recent public examinations were ladies. The mining and lumbering interests of our county present stronger inducements to young men than does teaching. Our schools are nearly all in session at this time, and we believe they will be eminently successful, from the fact that the teachers were generally selected with great care and discretion. Prof. J. M. Foster, formerly principal of the schools of Indiana, Pa., is at the head of the Osceola schools, assisted by four competent teachers; good work is expected from them. In Goshen, Greenwood, Chest, and Knox townships, teachers' salaries have been raised, and every effort will be made by the directors to secure a higher order of teaching talent than low salaries command.

CRAWFORD.—Supt. Chamberlain: The directors of Venango borough have recently added one and one-fourth acres to their school grounds. The whole has been nicely graded and seeded, and one hundred and fifteen fine young maple trees have been planted upon the same. The building, one of the nine brick school-houses in the county, is being remodeled inside and reseated with some of the most approved furniture of modern times. When done Venango borough will have one of the finest school properties in the county, Compared with former years, there have been but few new school buildings erected in Crawford in the year recently closed, but greater attention and care have been given to repairing and reseating old houses, and beautifying and ornamenting the school grounds.

ELK.—Supt. Dixon: Millstone has placed in each school a copy of Webster's Unabridged Dictionary. St. Mary's has supplied her schools with Appleton's Reading Charts.

ERIE.—Supt. Twining: The number of teachers attending the public examinations this year has been smaller than heretofore. I commenced the fall examinations August 25th, have held seventeen public and two special examinations since then, and have examined only 139 teachers. Three more examinations are to be held. We shall probably have teachers enough to fill the schools, but not a large surplus. A part of our teachers are usually examined in the spring, and these hold over.

FRANKLIN.—Supt. Disert: In nearly all the districts, the outlook for a successful term is very encouraging. In four districts the term has been lengthened, in Antrim and Letterkenny from five and a half months to six, in St. Thomas from five to five and a half, in Waynesboro' from eight to nine. Eleven new houses have been erected; two in Antrim, one in Guilford, one in Hamilton, one in Letterkenny, one in Montgomery, one in St. Thomas, two in Southampton, one in Washington, and one In Waynesboro'. These are all commodious and substantial buildings, furnished with the improved patent desks, except the one in Montgomery, Three new graded schools have been organized, one in Southampton (in which a new district was also formed), one in Washington, and one in Waynesboro'.

FULTON.—Supt. Barton: The examinations were more largely attended by citizens than heretofore. There were but three directors absent throughout the county, and a much greater interest was manifested than last year. We may not be able to supply all our schools with teachers, as many of our best have left the county in consequence of low salaries. This is a healthy state of affairs. Our directors are beginning to see that they must pay better wages, or do without teachers. The directors of Taylor district have repaired one of their houses, and furnished it with the Keystone patent furniture. I feel confident that within another year I will be able to report that many of our houses have been supplied with improved furniture. The matter is very much discussed in the districts of Ayr, Dublin, Taylor and Wells.

GREENE.—Supt. Nickeson: Our Institute was a grand success in every particular; 200 teachers enrolled, with an average attendance of 177. The wages of good teachers have advanced from three to eight dollars per month, whilst the wages of poor teachers are lower than last year. All our schools will open within the next two weeks. The teachers seem determined to do better work this year than ever before. More reading and study on the part of the teachers are omens for good.

LACKAWANNA.—Supt. Brooks: After a contest of more than six months, an office for the County Superintendent has been furnished by the County Commissioners. An injunction has been served on the directors of Roaring Springs district, to prevent erection of a much-needed graded school building.

NORTHUMBERLAND.—Supt. Wolverton: All the boroughs and five districts are again at work. So far as I have visited, the schools are in good hands, and I feel sure of prosperity. Chillisquaqua township will hold her second annual school picnic October 13. No district in the county takes precedence of it in educational zeal; they are now erecting a first-class school-house. I hope for a prosperous year.

PERRY.—Supt. Flickinger: As a class our teachers are better prepared this year than last, and I am hopeful of better results. The examinations were

never so well attended. Oliver township has moved for a graded county school, and is erecting a double house for the purpose. This is the second building of the kind erected this year, and I congratulate the directors of the two townships, Tuscarora and Oliver, on their good judgment and progressive spirit.

SNYDER.—Supt. Moyer: There is no scarcity of teachers. All the schools will be filled with teachers of good talent and experience, many of whom prefer to remain with their families and teach for less wages than to go abroad for higher salaries. The average salary throughout the county will be higher than last year. The school term in Selinsgrove will be six months. One new school house is built in Perry township, and a two-story one at Port Trevorton, making five new buildings for the year.

SOMERSET.—Supt. Weller: The examinations are better attended by visitors than last year, and a more earnest educational spirit is everywhere manifested. The new school-house in which the examinations at Petersburg were held is the handsomest and best in the county, outside the boroughs. It is well built, contains patent furniture, and is lighted, heated, and ventilated upon scientific principles. Much praise is due the Secretary of the Board, Mr. Orville Ross, a college graduate, who designed and superintended the construction of the building, which is a credit to the community and an honor to the county. Many of the districts have built new houses this summer. Somerset borough is erecting an elegant brick building, which when completed will be the finest school building in the county.

YORK.—Supt. Williams: An educational meeting was held in the court house, September 9th, for the purpose of organizing a Teachers' Association of York County. A permanent organization was effected, and a meeting appointed for November 4th, 1882. Washington, Lower Chanceford, Manchester North Codorus, and Penn districts have built one house each; Warrington, York township, Windsor, and Paradise each two. Improved furniture has been placed in one in Shrewsbury township, one in Shrewsbury borough, and six in Manheim.

ALLENTOWN.—Supt. Landis: The annual examinations for promotion were begun in the latter part of April, and continued daily to the end of the recent term. A new brick building is now in course of erection, and will be completed by October. It is to contain four large rooms, and will be supplied, as are all our other buildings, with the most approved furniture.

BRADFORD CITY.—Supt. Stone: The schools open with so large a number of pupils that it becomes necessary to provide additional accommodations, and the directors are negotiating for the use of one of our churches for temporary accommodation. Our buildings, with one exception, will be heated with steam the coming winter.

HAZLETON.—Supt. Harman: Institute work is pleasant and encouraging. Our teachers seem to realize that the Institute is a practical school from which they can carry away much to assist them in the school-room. The programme of exercises varies, being adapted to the needs of schools and teachers. As a rule, my visits have proved satisfactory, and I consider the present outlook all that can reasonably be expected at the close of the first month.

MAHANOY CITY.—Supt. Balentine: The new features of our schools are: 1. A uniform system of signals for manipulating classes and dismissing schools; and 2. A monthly written examination in every branch, in all the schools above the lower primaries.

MEADVILLE.—Supt. Roth: The schools opened September 4th very auspiciously. The teachers generally report better prepared classes. We all feel able to register a year's work much in advance of previous years.

NEW CASTLE.—Supt. Donaldson: The schools opened September 4th, with a fuller attendance than at the beginning of any previous year. Our high school has twenty pupils more than ever before. We have thirty-four teachers employed, one of whom was elected during the past month on account of the crowded condition of the Lincoln school. Our school property has been much improved during the summer vacation. All the buildings have been thoroughly renovated from cellar to attic. The grounds about the Lincoln and Croton schools have been well graded, and surrounded with excellent paling fence, well painted. Outline maps, Webster's Dictionaries, Appleton's and the People's Encyclopedias, have been secured and placed in every school-room in the city. My office has been neatly papered, carpeted, painted, furnished, etc.,—all of which goes to show the edterprise, generosity, and common sense of our present school board. I need scarcely add that we, teachers and superintendents of the New Castle schools, do not feel ungrateful to the school controllers for the very handsome increase of salaries made at the beginning of the present school year.

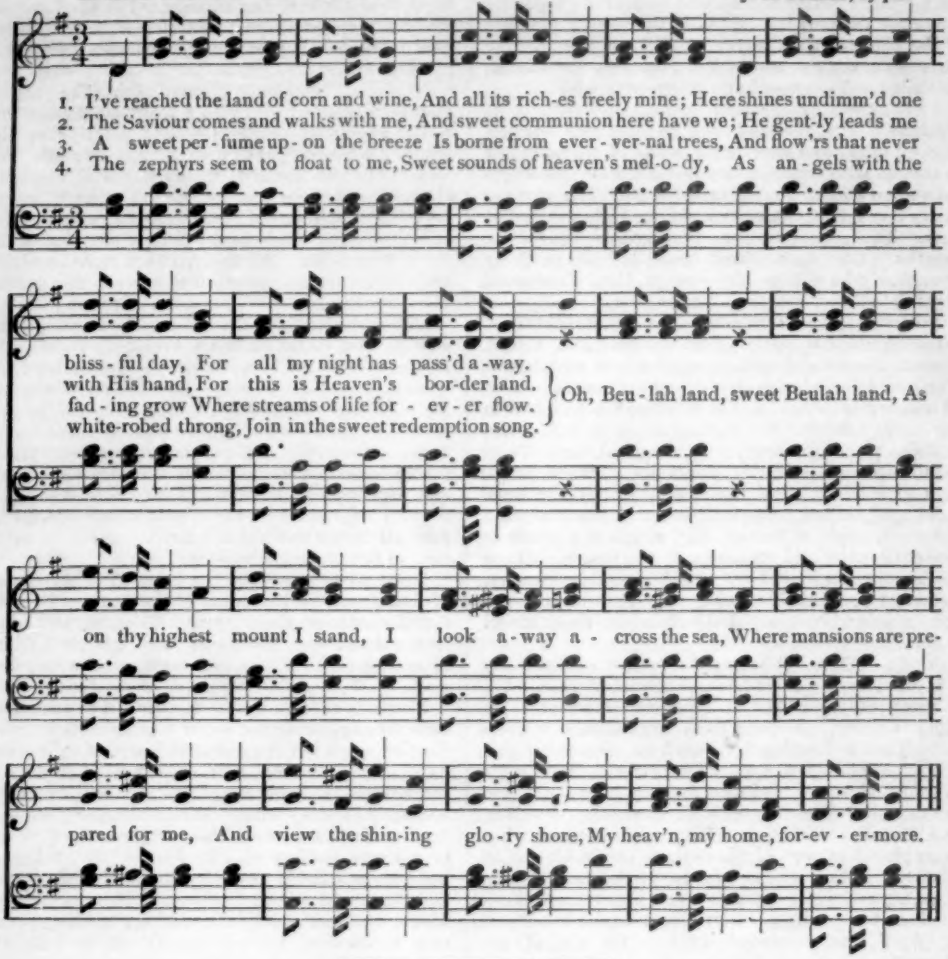
NORRISTOWN.—Supt. Gotwals: The percentage of attendance for the month of September was greater than for any previous year. Teachers and pupils have entered upon their work with a marked degree of earnestness. Quite an improvement has been made by the board in several of the buildings.

PHŒNIXVILLE.—Supt. Leister: In accordance with my suggestion, the board concluded to complete the Gay street building, of which one wing has been built. The addition will consist of a three-story centre building, with steeple for bell and clock, and another two-story wing. When completed we shall have twelve more rooms than at present. I noticed in a recent number of *The Journal* that my report had been somewhat misunderstood. I wished to say that the teachers' examination had been attended by all the directors and by the teachers holding permanent certificates, and *not* that all our teachers hold permanent certificates. The number of pupils enrolled during the term was 1508. The salaries of teachers were increased at a recent meeting of the Board. Especially is it a source of gratification that the services of the primary teachers are becoming more and more substantially recognized. The salaries of teachers in the lowest primaries were increased from $32 to $35; of First Primary from $40 to $45; of First Grammar from $36 to $40; of Assistant High School from $40 to $45. "Paragon" desks have been adopted for the new building.

SHENANDOAH.—Supt. Bartch: On September 26th, the board employed Miss L. Kate McLaren, of Monroe, Michigan, as special teacher of drawing and vocal music. The employment of such a teacher was a necessity, and will doubtless result in much good to our schools. Miss McLaren comes highly recommended.

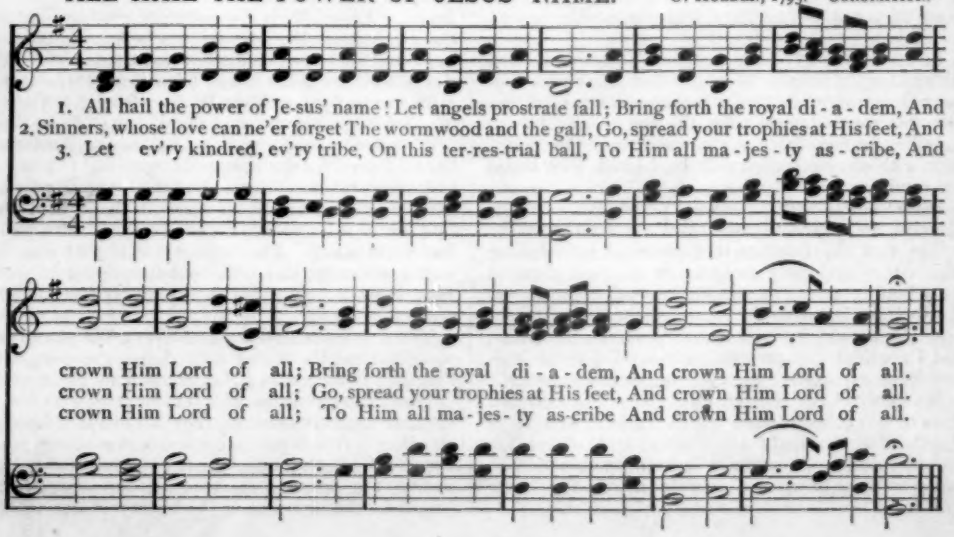
YORK BOROUGH.—Supt. Shelley: We aim to promote our pupils at *any time* during the year, when they pass certain tests; also, we aim to place pupils *at once* in lower divisions when, by reason of irregular attendance or idleness, they fail to reach fair class standing. We hope to report progress in our "new departure." Our boys are wonderfully stimulated during the opening month, and our prospects are bright for the best year in the history of our schools.

BEULAH LAND.

EDGAR PAGE.
J. R. SWENEY, by per.

1. I've reached the land of corn and wine, And all its rich-es freely mine; Here shines undimm'd one
2. The Saviour comes and walks with me, And sweet communion here have we; He gent-ly leads me
3. A sweet per-fume up-on the breeze Is borne from ever-ver-nal trees, And flow'rs that never
4. The zephyrs seem to float to me, Sweet sounds of heaven's mel-o-dy, As an-gels with the
bliss-ful day, For all my night has pass'd a-way.
with His hand, For this is Heaven's bor-der land.
fad-ing grow Where streams of life for-ev-er flow.
white-robed throng, Join in the sweet redemption song.
Oh, Beu-lah land, sweet Beulah land, As
on thy highest mount I stand, I look a-way a-cross the sea, Where mansions are pre-
pared for me, And view the shin-ing glo-ry shore, My heav'n, my home, for-ev-er-more.

ALL HAIL THE POWER OF JESUS' NAME.

E. PERRONET, 1780.
O. HOLDEN, 1793. "CORONATION."


1. All hail the power of Je-sus' name! Let angels prostrate fall; Bring forth the royal di-a-dem, And
2. Sinners, whose love can ne'er forget The wormwood and the gall, Go, spread your trophies at His feet, And
3. Let ev'ry kindred, ev'ry tribe, On this ter-res-trial ball, To Him all ma-jes-ty as-cribe, And
crown Him Lord of all; Bring forth the royal di-a-dem, And crown Him Lord of all.
crown Him Lord of all; Go, spread your trophies at His feet, And crown Him Lord of all.
crown Him Lord of all; To Him all ma-jes-ty as-cribe And crown Him Lord of all.